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ORIGINAL ARTICLES.

CHANGE OF COLOR IN THE HAIR FROM THE INTERNAL USE OF PILOCARPIN. EXHIBITION OF SPECIMENS.

Read in the Section of Dermatology and Syphilography, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

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In the *Phila. Med. Times* of July 2, 1881, I published a case entitled "Remarkable Change in the Color of the Hair from Light Blonde to Black in a Patient while under Treatment by Pilocarpin. Report of a Case of Pyelo-Nephritis, with unusually prolonged Anuria." This was a case of a lady, 25 years of age, and the drug was used to relieve the uræmic symptoms resulting from the anuria, which latter was extreme.

A record was kept of the amount of urine excreted, and this shows that on one occasion, from December 16 to December 23, a period of seven days, not a drop of urine was passed, and that from January 22, 1881, to February 2, eleven days, there was total anuria.

From January 22 to February 11 (twenty-one days), but 36 grams, or a little over 2 ozs. of urine were passed. During this time the catheter was used twice daily. The uræmic symptoms were very marked and distressing, consisting of dry skin, continual vomiting, severe headache, insomnia, muscular twitchings, confusion of vision, delirium, and threatened convulsions. Hot baths and hot packs did not cause sweating, and gave no relief.

On December 16, 1880, treatment of pilocarpin hydrochlorate hypodermically was commenced, the dose given being 1 centigram (gr. ⅙). The effect of this was very prompt, and the sweating and salivation produced most profuse. The relief to the uræmic symptoms was complete, the patient falling into a quiet sleep as soon as the effect of the drug ceased, and sleeping all night, awaking in the morning bright and refreshed. The pilocarpin was thus used twenty-two times from December 16, 1880, to February 22, 1881, requiring 35 or 40 centigrams.

As the patient became accustomed to the medicine it was found necessary to give 2 centigrams at a dose. After February 22 she began to improve, and no more was required.

Change in Color of the Hair.—All her life up to November, 1880, the hair was a light blonde. Four specimens of the hair were sent to the editor of the *Phila. Med. Times*, with the report of the case, for his inspection, and were as follows:

"1. November, 1879.

"2. November, 1880.—On both dates the color was the same, a light blonde, with tinge of yellow.

"3. January 12, 1881.—A chestnut brown; and

"4. May 1, 1881.—Almost a pure black."

The growth of hair was also more vigorous and individual hairs thicker.

I believed at the time, and still believe, that this change of color was caused by the pilocarpin. The lady is still at this date (March 10, 1889) under my observation. Her hair is now dark brown, having returned to that color from black. The full report of this case can be found in the *Phila. Med. Times* for July 2, 1881.

The following case is reported, as adding another to the evidence that jaborandi will produce the effect mentioned under favorable circumstances:

Mrs. L., æt. 72 years, suffering from Bright's disease, contracted kidney. Hair and eyebrows have been snow-white for twenty years. Suffered greatly from itching of the skin, due to the uræmia of the kidney disease. Skin harsh and dry.

For this symptom fld. ext. of jaborandi was prescribed, with the effect of relieving the itching. It was taken in doses of 20 or 30 drops, several times a day, from October, 1886, to February, 1888.

During the fall of 1887 it was noticed by the nurse that the eyebrows were growing darker, and that the hair of the head was darker in patches. These patches and the eyebrows continued to become darker, until at the time of her death they were quite black, the black tufts on the head pre-

NOTE.—The specimens presented were as described in the paper. In addition a specimen of the hair of the lady was shown, taken this month (June, 1889), and was nearly black. Dr. Prentiss also showed specimens of the ermine in winter pelt (pure white), summer pelt—white and brown—and in process of change between the two. And also specimens of the bobolink (*Dolichonyx Oriziworus*), showing similar changes.

WM. T. CORLETT,
Sec'y of the Section.

senting a very curious appearance among the silver-white hair surrounding them.

At the time the first of these cases was reported, the facts as stated were received with considerable incredulity, the editor of one well-known Western medical journal openly refusing them credit. Others preferred the charge that the lady had formerly bleached her hair, and that when this was no longer possible her hair returned to its original color.

In reply to these "suggestions," I will only say that the facts are known to scores of people at her home in Washington, D. C., and are entirely beyond question.

As illustrating the ubiquity of the daily press, and the ease with which all sorts of nostrums, valueless or otherwise, may be brought into notice through the newspapers, and how easy it is to make such a matter profitable to the advertiser, I mention an incident in connection with the case just reported:

It seems that some enterprising newspaper man became cognizant of the case, and put a short notice in a New York daily paper, to the effect that a drug had been discovered that would turn white hair black, and make hair grow on bald heads, giving my name as being connected with the Smithsonian Institution.

This paragraph must have been extensively copied in newspapers both throughout this country and abroad. The first intimation I had of its existence was an avalanche of letters from all parts of the country wanting information, some offering money for the receipt, others enclosing money in advance; which latter, be it known, I at once returned.

One from London, England, enclosing the half of a two-dollar bill, with the information that the other half would be speedily forthcoming on receipt of the formula or medicine.

These are the only cases thus far reported in which pilocarpin has been supposed to change the color of the hair.

In 1879 Dr. G. Schmitz,[1] of Cologne, reported two cases in which pilocarpin stimulated the growth of the hair in alopecia. One patient, æt. 60—completely bald. Pilocarpin subcutaneously for disease of the eye. After three injections, within a fortnight, the head became covered with a thick down which grew rapidly, so that in four months no trace of the baldness was left. No mention is made of the color. In the second case the patient, æt 34, had a bald patch on top of the head the size of a playing card. Total restoration of the hair after two injections, in a short time.

Schöller[2] tells of similar results in animals in whom alopecia had been produced by injections of bacteria.

Oscar Simon[3] relates the case of a woman æt. 30. General alopecia—head, eyebrows, eyelashes, axillæ and pudenda. In a few weeks after twenty injections of pilocarpin the lanugo of the whole body was restored. In other cases so treated there was no effect whatever.

Prof. Pick[4] relates the case of a man who was afflicted with alopecia areolata. Two weeks after pilocarpin injections followed a fine colorless lanugo, and in twelve weeks restoration of the hair. Ten cases of alopecia pityrodes favorable results from same treatment. Color of hair not mentioned.

Landesberg,[5] of Philadelphia, says that in more than 100 cases of eye disease treated by pilocarpin he observed no effect whatever upon the growth of the hair. Dose and mode of administration not mentioned.

In 1882 Julius Pohlman[6] experimented on white rabbits by hypodermic injections of pilocarpin. The dose used was large, 1 grain three times a day. No change in color was noted in pure white rabbits. In particolored animals, white and brown, in one a brown spot on back of head deepened and spread to a remarkable degree down the back and sides of the animal to the legs. In other individuals no change was noticed. Post-mortems in these animals showed enlarged spleen and altered suprarenal capsules.

The question of change of color of the hair is an interesting one both from a physiological point of view and from the practical one of pathology. The physiological aspect embraces the question of how a change of color takes place—whether in existing hairs or produced by shedding of the hair and a new growth taking its place of a different color.

It has been doubted by good authority, Hebra and Kaposi, if the hair, after being once developed, can change except by a very gradual process. This doubt is based upon the theory that the hair has no vascular or nerve connection with the general system, and must therefore be independent of nervous or systemic influence. This position is, however, not tenable. The clinical evidence is positive that the hair does change color under systemic influences—sometimes gradually and sometimes suddenly. We hear frequently of the hair turning white in a night from violent emotions, as fright, great grief or great joy, and it has come to be a method of expressing extreme emotion to say "it was enough to turn one's hair white." I say it is not an uncommon thing to see mention of such cases in popular literature—but well authenticated cases are not so often found. It is recorded in history that the hair of Marie Antoinette and Mary Queen of Scots became white

[1] Berliner Klinische Wochenschrift, No. 4, 1879; Med. Bull., Philadelphia, 1882.

[2] Kiebs' Archiv., 1879.
[3] Berliner Klinische Wochenach., 1879.
[4] Vierteljahrschrift für Dermat. und Syphil., 1880.
[5] Med. Bull., Phila., 1882.
[6] Buffalo Med. and Surg. Jour., 1882, p. 441.

suddenly from the horrors to which they were subjected. Poets have not failed to avail themselves of the idea. Byron in the "Prisoner of Chillon" says:

"My hair is gray, but not with years,
Nor grew it white
In a single night,
As men's have grown from sudden fears."

A short time since, in conversation with an eminent microscopist and pathologist, I asked how he would explain from the basis of minute anatomy the sudden change in color of the hair. He replied that he did not explain it; that he did not believe it happened; that the reported cases were not authenticated. He further said that from the structure of the hair and its relation to the skin, he considered it impossible.

Duhring, 3d Edition, is authority for the statement that Hebra and Kaposi discredit sudden canities. There is nevertheless no doubt of the fact that such change does sometimes occur, and to set the matter definitely at rest I looked up the subject in the Library of the Surgeon-General's Office. The following are some of the references found:

Dr. Wm. P. Dewees' reports a case of puerperal convulsions under his care. From 10 A.M. to 4 P.M. 50 ozs. of blood were taken. Between the times of Dr. Dewees' visits, *not more than an hour*, the hair anterior to the coronal suture turned white. The next day it was less light, and in four or five days was nearly its natural color. He also mentions two cases of sudden blanching from fright.

Dr. Robert Fowler[7] reports the case of a girl 16 years of age, apparently in good health, hair black; found one morning in combing her hair that a strip the whole length of the back hair was white, starting from a surface about 2 inches sq. around the occipital protuberance. Two weeks later she had patches of *Ephelis* over the whole body.

In the *Canada Jour. Med. Sci.*, 1882, p. 113, is reported a case of sudden canities due to business worry. Microscope showed a great many air vesicles both in the medullary substance and between the medullary and cortical substance.

Dr. Graves[8] says most authors are of the opinion that the hair, once formed, is independent of the organism—with which opinion he disagrees, instancing *Plica Polonica* as opposed to such a theory. He gives the following cases:

1. British officer in India, 48 years old, fell into bad health and became prematurely gray. Returned to England, regained his health, and in four years his hair returned to its original brown.

2. In a man 67 years of age, hair white, chest covered with long white hair, chest was blistered, and when hair grew out over blistered surface, it was black.

3. Man æt. 35, bald. Small blister size of crown piece was applied to vertex for congestion of brain. Growth of hair followed over blistered surface.

4. Lady, hair of vertex gray and very scanty. Tar water applied. Hair grew and was of natural color.

5. Same occurred in another case after application of citrine ointment.

In the *Boston Med. and Surg. Jour.*, 1851, is reported a case of a man 30 years old; hair scared white in a day by a grizzly bear. Was sick in a mining camp, was left alone and fell asleep. On waking found a grizzly bear standing over him.

A second case: Man of 23 years was gambling in California. Placed his entire savings of $1,100 on the turn of a card; was under tremendous nervous excitement while the cards were being dealt. He won. The next day his hair was perfectly white.

In the same article is the statement that the jet black hair of the Pacific Islanders does not turn gray gradually, but when it does turn it is sudden, usually the result of fright or sudden emotions.

The following cases are of change of color from white to black:

Dr. Bruley,[10] physician to the Fontainebleu, reported to the Society Médicale, Paris, in 1798, the case of a woman 60 years old, hair naturally white and transparent as glass, became jet black four days before her death (phthisis). On examination after death the bulbs of the black hairs were of immense size and engorged with dark pigment. The roots of white hairs that remained were dried up and two-thirds smaller in size.[11]

Dr. Alanson Abbe[12] mentions case of Dr. Capen, who had become gray, but on recovery from disease his hair became quite dark.

In the *St. Louis Med. and Surg. Jour.*, 1845, p. 310, there is reported the case of an old man 81 years of age, robust and hale. Hair from being perfectly white became black—same of the beard. This man also presented the phenomena of second sight; could read readily without glasses.

The text-books on skin diseases also mention cases. Several cases of sudden canities are referred to in Ziemssen.

Brown-Séquard in his own person noticed one day a white hair in his beard where there was none the day previous. He pulled it out and the next day others appeared. This was observed repeatedly, and there was no doubt the hair in its entire length turned white in one night. Under the microscope these white hairs showed small air bubbles in place of the normal pigment. In a case of hemiplegia, the hair became white on the paralyzed side. The same has been reported in cases of neuralgia. Other anomalous cases have been noted where the hair became white in patches, and where individual hairs have been seen al-

[7] Phila. Med. Mus., 1807, Vol. iii, p. 219.
[8] London Lancet, 1853, p. 596.
[9] Dublin Quar. Jour. Med. Sci., 1847.
[10] Boston Med. and Surg. Jour., 1852, p. 406.
[11] Wilson. Skin Dis. p. 377.
[12] Loc. cit.

ternately white and black at different stages of its growth—to which condition Karsh and Landois have given the name of "ringed hair," and ascribed it to an intermittent trophic disease affecting the hair follicle.

Wilson[13] mentions a case where the hair was gray in winter and regained its normal color in summer.

Alibert[14] and Beizel relate cases of women with blonde hair which all came out after severe fever, and when new hair grew it was black. Alibert also relates the case of a young man who lost brown hair during illness, and that which replaced it was red. In the case of an epileptic girl of idiotic type with alternating phases of stupidity and excitement, during the stage of stupidity the hair was blonde; during excitement it was red. This change of color took place in two or three days—the change always beginning at the ends of the hairs. Pale hairs showed an increased number of air spaces. It has been frequently observed that when the hair changes color gradually the change begins in the end and extends toward the bulb. In conversation with an eminent ornithologist on the change of color in the plumage of birds he said: "I have lately been watching hairs in my moustache turn gray, and it always begins at the ends and extends to the roots."

Speaking on the subject with a lady (the one who furnished the specimens here shown), she mentioned the case of the physician who attended her at the seashore last summer. The doctor's hair was long and quite gray. One day he came in to see her after having his hair cut and she was surprised to notice that the gray hair had given place to black. Examination showed that his hair towards the ends had been white and that nearer the skin black. The white portion had been removed by the cutting.

The cases here collected are only a few in comparison to what might be found; but they are sufficient to prove beyond all reasonable doubt that the hair does suddenly change color under certain circumstances, and that the change takes place in existing hairs.

Analogous to changes in the color of the hair in man are the changes which occur in the lower animals. In animals and birds such changes are often periodical, as in their summer and winter coats. This occurs to a very marked degree in a great many species. Thus the ermine in summer is dark brown, in winter is pure white. Among birds the ptarmigan is white in winter and brown in summer. So with our familiar bobolink, yellow in fall, in spring black and buff. As to the question whether, in birds and animals, this change takes place in individual feathers and hairs, or whether all the old plumage and fur is shed by moulting, recent investigations favor the view that it is due to both. Dr. Elliott Cones[15] says it may be either or both. Mr. Robt. Ridgeway (Smithsonian Institute) inclines to the opinion that in birds it is accomplished by moulting. Dr. Louis Stejneger (Smithsonian Institute) was formerly of same opinion, but recent studies have inclined him to the belief that there is also a change in the color of existing feathers. He was led to this change of belief by a critical study of the changes in color of the black and white flycatcher of Europe, and especially from an examination of a series of twenty-seven specimens of the narcissus flycatcher (*Xanthophygalia Narcissina*) of Japan. His studies in full will appear in the Proceedings of the U. S. National Museum, 1889. Dr. C. Hart Merriam, Ornithologist of the Agricultural Department, in a letter dated June 12, 1889, says: "The change from fall to spring plumage in birds is due to moult—without exception as far as I am aware. In the case of mammals the matter is now in dispute. Probably in the majority of cases it is due in part to moult and in part to actual change in the color of existing hairs. . . . . The change in color from immaturity to maturity is always due to the growth of new hairs or feathers."

That the change in birds and mammals is due in part at least to change of existing coats seems established. Sometimes this change is almost sudden, as where the change of season is very abrupt. In such case of course there would not be time for the growth of new hair or plumage.

In the golden plover (*Charadrius Dominicus*) the black belly of summer changes to white in winter. While this change is taking place individual feathers part black and part white may be seen. In Bonaparte's gull, a common gull of our coast (*Larus Philadelphia*) the black of the head of summer changes to white in winter principally by change in color of existing feathers.

Another interesting feature of this question as bearing on the change in the color of the hair by drugs, is the influence of certain substances administered as food, in changing the color of tissues in some of the lower orders. In orange canaries it has come to be an established fact that by feeding the parent birds with a certain kind of food the active ingredient of which is cayenne pepper, the offspring will be of an orange color, and orange-colored canaries may be seen in the stores of most bird fanciers. A food for producing orange canaries is extensively advertised by a bird dealer in Baltimore (Bishop). It is reported that the Indians of the Amazon cause green parrots to change to yellow and red by feeding them upon the fat of a certain fish allied to the shad.[16] Dr. Merriam, in the letter previously quoted, says: "It is well known that food affects the color in birds. Red purple finches and pine grosbeaks invariably turn

[13] Drocker. Dis. of Skin, 1888.
[14] Loc. cit.
[15] Fur Bearing Animals.
[16] Wallace's Amazon.

yellow when caged. This is due undoubtedly to the absence of some important food element. In some of the Zoological Gardens of Europe it is the custom to send white spoonbills and flamingoes to Amsterdam Garden to be recolored. The particular food by which Mr. Westermann accomplishes this end is a secret—but it is believed to be a kind of shrimp or small crustacean which has a quantity of red pigment in its shell."

In the same direction are the changes of color in other tissues by particular foods. It has long been known that when pigs are fed on madder their bones become red. This fact has been taken advantage of by physiologists in studying the structure and development of bone. The phosphate of lime acts on the coloring matter of madder as a mordaunt. When given intermittently to a growing animal, the bone presents alternate rings of red and white."

Darwin[16] mentions that pigs in Virginia eat the paint root (*Lachnanthes Tinctoria*) and their bones are colored pink, and it caused the hoofs of all but the black varieties to drop off. "From facts collected by Heusinger it appears that white sheep and pigs are injured by certain plants, whilst dark-colored individuals escaped. . . . . On asking some farmers in Virginia how it was that all their pigs were black he was informed that the black members of a litter were selected for raising, as they only had a chance of living."

Fleurens (1824) made use of madder for coloring the semicircular canals of pigeons, to outline the canals more distinctly. See also Ferrier on "Functions of the Brain," and the writings of Vulpin, the French physiologist. Mr. Lucas, osteologist of the National Museum, informs me that the bones of the crow are made purple by feeding on pokeberries. Ridgway says the bones of the Western fox squirrel are red while those of its Eastern brother are white. No cause has been assigned for the difference.

See also experiments by Marci Paolini in 1841. (Specimen quorundam experimentorum de vi Rubiae ad ossa ovorumque Gallinarium putamina calcariæ coloranda. No. 1 of Miscellanii Medichi, Pamphlet Vol. 1149.) He gives a very good plate of the colored skeleton of a fowl, and also of its colored egg after four months feeding *Rubia Tinctorium*. He also gives references to other authorities, the most satisfactory of which is Belchior, Philosophical Transactions, Vol. 9, 1732–44, who gives an account of feeding hogs and fowls with madder root and wheat meal. A rooster so fed died in sixteen days, and showed the condition admirably. Other writers take up the subject after him in the same publication.

It is reported that among workers in cobalt and indigo the hair becomes blue. Also in artisans working with copper, the hair takes a greenish hue.

[16] Todd's Cyclop. of Anat. and Physiol., Vol. iii, p. 853.
[17] Origin of Species, p. 9.

The color of butterflies can be changed according to the food upon which the caterpillars are fed. More remarkable still, perhaps, is the change of color in the chameleon, and in many insects, according to the color of the substance with which they are in contact.

The environment undoubtedly has a powerful influence upon the coloring of animals and birds. This is clearly illustrated in every museum of natural history. Specimens from arid desert regions are uniformly of a dull, faded appearance compared with those from regions of luxuriant foliage.

M. G. Pouchet,[18] in his work "Mechanism of Change of Color in Fishes and Crustaceans," says that change of color in fishes is due to the size of contractile colored cells placed in the skin. These are under the influence of the nerves. The author found that the particular nerves controlling them (in the turbot) were nerves of the sympathetic system. By cutting the nerve supplying a particular area of the skin, he had been able to retain that area unchanged in color, while the rest changed as the fish found itself on a dark or light surface. That the eye is the means by which this change in its condition is communicated to the fish or crustacean, and that then reflex action takes place through the sympathetic nerves on the color cells of the chromatophors, is proved by the fact that when the animal experimented on is blinded, no further change of color occurs when it is removed from light to dark or the opposite.

Also see *Monthly Microscopical Journal*, 1871, Vol. vi, M. G. Pouchet on "Study of Connection of Nerves and Chromoblasts" (principally in fishes and batrachians).

The reasons assigned by naturalists for periodical change in color of plumage or fur are twofold:

1. Sexual selection.
2. As a protection against enemies.

1. Sexual selection. The male takes on a brighter and more attractive appearance to facilitate the business of courtship and the securing of a mate.

2. As a protection against enemies. In Arctic regions birds and mammals are usually white in winter, the color of the snow, so that they are with more difficulty found by their enemies. Darwin supposes that originally only a few individuals took on this change, and these being better protected, gradually, by a process of natural selection, only the white variety was left.

It is apparent from what has been said that there is very much concerning the changes of color of the hair and other appendages of the skin in man and the lower animals that is not understood. In its normal condition the color of the hair is dependent upon the hair bulb. It is

[18] Trans. of Brit. Assoc. for Adv. of Science, 1872, p. 152.

here that the melanine is secreted from the coloring matter of the blood, and from this point as the hair grows it permeates its cells, the intensity and shades, from black to blonde, depending principally upon the amount of the coloring matter. In black hair the hair bulb is larger, contains a greater amount of melanine, and the hair itself is coarser and of more vigorous growth. In those cases where the hair has turned from white to black, and minute examination has been made, this has been found true.

In the case reported by Bruley, already referred to, of a woman æt. 60 whose hair, previously white, became jet black four days before her death, the bulbs of the black hairs are described as being of immense size and engorged with dark pigment, while the roots of the white hairs that remained were dried up and two-thirds smaller in size. So, on the other hand, in change from dark to white the hair is finer in texture, less vigorous in growth, and the hair bulbs smaller.

The sudden change in canities when due to violent emotions, can be explained in no other way than through the bulb. It is true that there is no direct vascular or nerve connection between the bulb and its hair after it emerges from the skin, but it is also undoubtedly true that there is communication by osmosis between the cells of the papilla and those of the shaft and different layers of the hair.

Wilson[1] ascribes the cause of sudden whitening of hair to insufficient nutritive power of the skin; also suggests that there may generate a gaseous fluid in the hair in place of its normal constituents. He says further that the fluids from the blood-vessels of the skin permeate the hair, and thus change in fluids may alter color.

In all of the cases of sudden change to white, where the hair has been examined, the coloring matter has disappeared and in its place is found an accumulation of minute air globules. The same is true of gray hair of advancing age. How the air gets into the capillary structure has never been explained. Two possible explanations are offered. One is that in the destruction of the coloring matter a gaseous substance may be developed. The other is that air may find entrance from without, through the sides or end of the hair. It is possible to suppose a condition of the bulb producing a vacuum in the hair shaft that shall cause, by suction, a drawing in of air. The view that the air finds entrance through the end of the hair is supported in the fact that the change of color begins at the extremity.

Erector pili muscle has an important influence on pathological changes which take place in the hair bulb. This minute muscle has its origin in the true skin and, passing downwards, is inserted into the base of the hair bulb, so that when it contracts it lifts the hair outwards and compresses its papilla. The effect of sudden fright causes the hair to "stand on end" by contracting this muscle. Temperature has its influence with animals and birds. In cold weather (winter) the change is to white; in summer to black. Cold we know contracts the skin and thus probably causes pressure on the hair bulb. That the hair is easily influenced by external causes, as well as those which come through its bulb, is fully demonstrated. The mere fact that it can be so readily dyed and bleached artificially shows that the agents used for this purpose penetrate its substance. Bleaching agents such as chlorine, peroxide of hydrogen and strong alkalies act by removing the coloring matter, and not by adding any *whiteness* of their own.

It remains to say a few words upon the subject of changing the color of the hair by substances taken internally; and as this paper has already exceeded the limit I had set for it, I shall be brief

1. In the human subject the only agent, as far as I am aware, which has been charged with changing the color of the hair, when taken internally, is jaborandi. Of this sufficient has already been said.

2. Cayenne pepper in changing the color of canary birds to orange.

This is is a well known fact to bird fanciers. I tried in Washington to get a specimen to show you, but was told it was not the season for them —that they came in the autumn. Also that they soon relapsed to their original color unless the cayenne pepper food was kept up.

3. The change of color in parrots by the Indians of the Amazon, from green to yellow or red, by feeding the fat of a certain kind of fish (Wallace's Amazon).

4. The restoration of certain birds to their original brilliant colors at the Zoological Garden, Amsterdam, by feeding a kind of shrimp or small crustacean.

5. As analogous to the above, the effect of madder in staining the bones of pigs red, and of pokeberries coloring crows' bones purple.

It might be of interest, did time admit, to study the influence of diet and habit upon the color of hair in different nations of men; as for instance, why the Saxons have light hair and the Gauls black hair. It is within the bounds of possibility, also, that discoveries may be made in the future by which the color of the hair in the human race may be modified by judicious treatment of the parents.

Some colors of hair are not popular, especially with ladies, and it is not likely that cayenne pepper will ever become popular to produce the orange hue. But if its antithesis should be discovered and the orange changed to black or blonde, then perhaps the gentle maiden with auburn hair will disappear, and the white horse be left in melancholy solitude.

[1] Lecture on Skin.

CLIMATIC CHARACTERISTICS OF SALT LAKE CITY.

Read in the Section of State Medicine, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY F. S. BASCOM, M.D.,
OF SALT LAKE CITY.

The members of this Association can easily recall a time when climatological researches were speculative, vague and unsatisfactory, and many of the articles presented on this subject were largely imaginative and conjectural; but within the last decade this subject has engaged the attention of some of the most eminent and scientific physicians, and so many valuable statistics have been collected from the United States Signal Service reports and other sources that climato-therapeutics has become an interesting and important study to every well-informed physician.

Local pride and enthusiasm have, however, induced many writers to advance claims as to the climatic advantages of health resorts which are not justified by actual statistics, nor by the experience of invalids; and though I cannot hope to present to the profession observations especially interesting or original, I do desire to avoid the errors above referred to. Again, there still remains a wide difference of opinion as to what is needed in a health resort. No less an authority than the late Dr. Austin Flint is accredited with having commended to consumptives the wards of Bellevue Hospital; while others, equally honest in their opinions, whose careful researches render them worthy of our consideration, have in turn recommended climates high and low, moist and dry, for apparently the same class of cases. It is hardly to be expected, therefore, that the subject matter of this paper will meet the opproval of all; but if I can simply and truthfully present and favorably impress you with a few of the many advantages of Salt Lake City as a sanatory resort, my object will have been accomplished.

Salt Lake City is located near the shores of the Great Salt Lake, in one of the most beautiful valleys of the West. It numbers about 35,000 inhabitants, is laid out in blocks of 40 rods square, with streets 130 feet in width, many of which are adorned with trees and bordered with streams of water. The altitude of the city is 4,348 feet above sea-level. Surrounding the valley are lofty mountain ranges, and one never wearies of the variety of scenery which they afford, the beauty and grandeur of which can hardly be surpassed. The water supply for the city proper comes from the summit of the snow-capped mountains and is pure, clear and cold. Utah lake, 50 miles to the south, is the source of the Jordan river, a stream of fresh water flowing through the city to empty into the Great Salt Lake. This water, however, is only used for irrigating purposes, though the same lake would furnish an unlimited water supply, were it needed. Farms and orchards cover the valley, and the cereals, fruits and vegetables are raised in abundance. This much as a brief general description of the city and environments, and I will now proceed to the special climatic advantages.

Most authorities believe that the essential features of a health resort, particularly for pulmonary diseases, should be:

1. Atmospheric dryness.
2. Equability of temperature.
3. Altitude varying from 3,000 to 8,000 feet.
4. Greatest number of clear, sunshiny days.
5. Freedom from high winds, electrified storms, etc.

I present them in the order of importance commonly adopted by writers on this subject.

ATMOSPHERIC DRYNESS.

The dryness of the atmosphere, as indicated inversely by its relative humidity, is, we believe, of more importance to the invalid than any other climatological factor. Dr. Denison, in an interesting essay on this subject, comparing Denver, Col., with Jacksonville, Fla., allowing for the increased volume of air breathed in the higher altitude, due to its rarefaction and consequent frequency of respiration, assuming in both places a robust man breathing eighteen times per minute and expiring an average of thirty cubic inches, ordinary exercise included, shows that in the dry air of Colorado the vapor exhaled above that inhaled in twenty-four hours is 2,453 grains, or nearly six ounces more than during the same period in Florida. The same method of comparison applied to Denver and Salt Lake City shows that in the still dryer air of Salt Lake the excess of vapor transpired would be 144 grains more than in Denver and four ounces more than in Los Angeles. Certainly his suggestion, that "this transpiration of surplus vapor is an admirable vehicle for removing effete matter, waste tissue and germs of disease," is a most reasonable one.

Though opinions vary on almost every other climatic factor, all agree that *pure* air is essential to the invalid, and that the dryer the air, the more aseptic are its properties. This much is conceded by those who oppose altitude, equability, etc., as of importance in climato-therapy. In this connection I would submit the following table, compiled by Dr. H. D. Niles, of this city, from the United States Signal Service reports:

Period of observations, from 1879 to 1884, inclusive.	Elevat'n, Feet.	Relative humidity Per cent.	Average daily Range. Deg. F.	No. clear and fair days.
Salt Lake City	4,348	44.0	18.6	277
Denver	5,292	51.2	24.2	302
Colorado Springs	6,080	55.5	26.4	316
El Paso	3,764	48.9	30.1	332
Santa Fe	6,992	44.7	26.0	318
Los Angeles	371	68.2	23.1	313

It will be noticed that the relative humidity of Salt Lake City during that period is 44 per cent.

of saturation, while that of Denver, a representative high altitude resort, is 51.2, and that of Los Angeles, of low altitude, 68.2, a difference in the first instance, in favor of Salt Lake City, of 7 per cent., while in the latter comparison there is a very great variation of 24 per cent.

Statistics for given periods are apt to be misleading, and in combining the various conditions essential to rating a climate, figures favorable or unfavorable may be chosen, according to the period selected; but, endeavoring to make due allowance for any discrepancies in this regard, I think I am correct in drawing the conclusion that for dryness of atmosphere Salt Lake City is not excelled.

EQUABILITY OF TEMPERATURE.

But few authorities are inclined to criticise an equable climate, and this is one of the strong points in favor of Salt Lake. The close proximity of Great Salt Lake, a body of water covering an area of 2,500 square miles, acting as a moderator to the climate and tempering the winds, gives to this city an equability of climate usually found only in low altitudes with excessive moisture. In this feature the climate is indeed unique, and nowhere else, to my knowledge, can the same degree of equability be found combined with perfect hygrometric conditions and such elevation. High altitudes and dry climates usually have their disadvantages in extreme cold, high winds and variability, while to secure equability we must submit to warmth, moisture and accompanying enervation; but in this valley there seems to be a happy exception to the general rule, for, as above indicated, the average daily range is but 18° F. Drs. Hamilton and Standart, well-known Salt Lake physicians, stated, in a recent paper, that from a record of the readings of the thermometer kept at Camp Douglas, three miles from this city, for a period of twenty-four years, previous to the establishment of a signal service station, it was ascertained that the average high extreme for these years was 97½°, and the average low extreme 4° above zero, making an average annual range of 93½°. It will be seen that for equability of climate these figures compare favorably with sanitary resorts of low altitude, while, as compared with cities of the same altitude and relative humidity, there is a marked difference.

ALTITUDE.

Another great advantage is that the elevation is not extreme. With an altitude of 4,300 feet, it also has advantages of varying the elevation from 500 to 1,500 feet, for patients may choose their residence either on the benches and foothills of the mountains, or in the valley below, and still be at no great distance from the center of the city. The invigorating and tonic effect of the rarefied air of this altitude, as compared with the heavy, depressing atmosphere of the sea coast, can hardly be estimated, and certainly none can appreciate it who have never sojourned in a mountainous region. It will also be observed that with a moderate elevation we have nearly all the advantages and none of the dangers of high altitude resorts.

NUMBER OF CLEAR AND SUNSHINY DAYS.

Statistics are not so favorable in this respect, perhaps, as in some other cities, and yet it must not be understood that the percentage of cloudy days necessarily indicates that the greater part of the day is cloudy. On the contrary, it is seldom that the sun is obscured longer than a few hours in the day; a fog is unknown, and refreshing rains are hailed with delight. The invalid is soon in the sunshine again, relieved from the dust. A day during which the face of the sun does not smile upon this valley is exceptional indeed, and an event to be remembered. The average rainfall for Salt Lake City from 1847 to 1889 was between 15 and 16 inches, the maximum for any single year during that period being 22.61 inches, the minimum 10.14 inches. Weather reports for a number of years place the mean rainfall at Denver at 14.99 inches, and at Los Angeles, 18.25 inches. A striking advantage in the rainfall of this valley, as compared with Los Angeles, is that while Los Angeles has its rain almost entirely in winter, with but little during the balance of the year, and, consequently, intolerable dust, in Salt Lake City the showers occur during the summer, purifying the atmosphere. *Freedom from high winds*, as already indicated by its equability, is another advantage this climate enjoys. Observations show that the number of miles traveled by the wind at this point for one year was 44,468; some years were as low as 37,000. To more clearly indicate this favorable feature I would state that for the same year statistics show that the number of miles traveled at San Diego was 55,062; Colorado Springs, 70,912; St. Paul, 76,096; Jacksonville, Fla., 74,192, and Cape May, 134,455. This not only relieves from extreme cold, variability, great amount of dust, etc., but what is equally essential, it allows the invalid the freedom of constant open-air exercise, without the dangers of being frozen by a blizzard or translated by a whirlwind, such as are frequent in other high and dry climates. Though this valley may have its dust storms, the moderate velocity of the wind renders this disturbing element less frequent here than usual to corresponding altitudes. But perhaps enough has been said in detail of the climate of this valley, and in what follows I feel that I am justified in assuming that Salt Lake City has the climatic advantages so important to health seekers. Pure and desirable atmosphere is, however, not all-important. Neither is it the only advantage Salt Lake offers. A high and dry climate,

in itself essential, can be greatly aided by healthful surroundings, and if you can add to such a climate many of the beneficial features of a seaside resort, you give to the invalid an "ideal climate" indeed. Such, we believe, is that of Salt Lake City. So large a body of water as the Great Salt Lake lends its modifying influence to the atmosphere of the city, and residents in this valley are invigorated by bathing in its waters, unique and wonderful in their effects. This lake is about 350 miles in circumference, and picturesquely located. Analyses of the water vary in its solid ingredients from 15 to 30 per cent., according to different periods of examination. This may be accounted for by increased fresh water supply at one time, and diminished supply, rapid evaporation, etc., at another. The water is so clear that objects at a depth of 15 feet can be distinctly seen. The temperature of the water during the bathing season (from May 15th to October 15th) varies from 65° to 85° F. The novice need have no fear of going to the bottom, for the density of the water (about 1,800 grains of solid matter to the pint) renders sinking impossible and swimming a delightful exercise; while invalids too weak to indulge in this recreation can spend their time upon the beach, enjoying the sunshine and the beautiful scenery, strengthened by the refreshing breezes of the lake. Eastern cities are filled with men and women enervated by overwork and mental strain, who would be given a new lease of life by one season at the Great Salt Lake, and many consumptives have already attested its virtues and sounded its praises.

We hear of the hot springs of Arkansas and their favorable effects on the many invalids who visit them, but within the limits of this city are several hot sulphur springs of equal virtues, where one can derive all the benefits of the waters without endangering health by the depressing influences of the Arkansas climate. Numerous cases of rheumatic and neuralgic affections, gastro-hepatic, skin and syphilitic diseases, and miners suffering from metallic poisoning, resort to these springs and are benefited by their use, and at an early date it is expected that a sanitarium will be erected in the heart of the city, with all the conveniences for invalids, with baths supplied by piping water both from these springs and Salt Lake, so that all can, with little exertion or expense, derive the full benefit of the springs without inconvenience or loss of time. But the more practical may ask, what class of cases are most benefited by this climate?

I have in my possession a long list of clinical notes on cases of phthisis, etc., which have been cured by this combination of nature's remedies. Some of these histories are of unusual interest from their long and faithful but unavailing trial of other resorts; others because they are the only survivors of large families which have succumbed to the disease. If any present are interested, I shall be glad to furnish them; but it is not my intention to embody, in an article of this character, elaborate clinical statistics, nor to attempt to classify the diseases which are benefited by a residence in Salt Lake City. I have already, in referring to the lake and springs, indicated some of these diseases, and I might add to such as have been suggested the whole list of so-called strumous affections, while others will suggest themselves to every experienced physician.

Any person taking the trouble to investigate will find that phthisical patients have been and are now being positively and permanently cured by long residence in this climate. I would emphasize the expression "long residence," for many can tell the sad story of some bright young consumptive who has been so greatly improved by a short residence of from three to six months in this climate that the cautions of his friends and physicians are disregarded and he returns to his Eastern home only to find, after a brief interval, that the dread disease is again upon him, and though he may again hasten to the mountains, he finds that it is too late. It is well known that high altitude and rarefied atmosphere accelerate the circulation and hasten tissue change, and the general inference has been that heart disease and advanced cases of lung troubles should be prohibited these climates. Assuming that this inference was correct, I have watched my cases of organic heart disease with much anxiety, and have frequently urged lower altitude. To my surprise, however, some of the most aggravated forms of valvular heart disease are improved rather than depressed by this climate, and among these are patients who have had all the advantages of low altitude resorts and are capable of judging of the relative benefit derived by residence in various altitudes.

In this connection it may be well to again call attention to the moderate altitude of this city and the opportunities for varying the elevation as may be most suitable to the individual case. I offer this suggestion for what it is worth. I do not assume the responsibility of recommending this climate for all cases of heart disease, but it is probable that many cases which do not do well in other climates will progress favorably here.

Again it is presumed that advanced stages of phthisis are not benefited by high altitudes, but the end only hastened. Certainly this is true of extreme and hopeless cases, and yet we are not without many authentic histories of relief and cure in this climate where abscess and well-marked destruction of lung tissue had been diagnosed by our most eminent Eastern physicians, and it is nothing unusual to meet now comparatively healthy and active business men who were brought here on a stretcher. It is, however, im-

portant to impress upon all physicians recommending patients to this climate the desirability of sending them early in the incipiency of the disease, if the best results are to be expected. In recent years the many allurements of the Golden State have attracted so many health seekers, and the travel in that direction has been so great that, as when in olden time "all roads led to Rome," so now California is in all instances the objective point. As these people journey homeward disappointed, as a great many are, by the climate of the western coast, we are convinced that they may find in the Great Salt Lake Valley all the climatological factors so essential to the comfort and restoration of the invalid.

DR. H. B. BAKER criticised the author in that he had given only the *relative* and not the absolute humidity, and had not supported his claims with tables of sickness and death.

REPORT OF CASES OF DANGEROUS MIDDLE EAR AND MASTOID INFLAMMATIONS WHICH FOLLOWED TREATMENT OF THE NASO-PHARYNX.

Read in the Section of Laryngology and Otology at the Fortieth Annual Meeting of the American Medical Association, held at Newport, June, 1889.

BY J. L. THOMPSON, M.D.,
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Seventeen or more years ago, when the nasal douche was in the hands of nearly every one under treatment for catarrh, inflammations of the middle ear from the unskilled use of said douche were frequently met with. Now again, since such great advancement has been made in the line of nasal surgery, we see these inflammations quite often. Many of them have fallen under my care of late, some of which are briefly reported as follows:

Case 1.—Suppurative otitis media, with total loss of the left memb. tymp., from the use of finely powdered acetate of lead in epistaxis.

This occurred in a young man aged twenty-three years, eight months before he consulted me. He stated that everything had failed to arrest the bleeding until his physician applied the lead, which had the desired effect very quickly, but that it started a violent pain in a few hours, which finally caused perforation and destruction of the drum-head and a discharge ever since, and terribly impaired hearing, which condition still existed at the date of my examination.

Case 2.—Otitis media, with extension to mastoid process, following the application of a strong solution of nitrate of silver to the nares. Wild's incision. Apparent recovery. Death.

This happened in a young man aged eighteen, who had been under treatment by his physician for catarrh for some time. Like the former case, after the use of the silver the ear soon became violently inflamed, was treated, became better and worse, and was finally sent to me for treatment. I found the tissues swollen behind the ear, and immediately cut down to the bone and evacuated a large quantity of pus. He soon became much better and returned home in one week, but took a relapse in a short time and died of meningitis, as I subsequently learned. No post-mortem examination.

Case 3.—Otitis media, following the application of caustics to the nasal mucus membrane. Puncture of the drum-head; recovery.

This was in a man sixty years old who was under the care of an eminent specialist of an adjoining state. He suffered very much for weeks but recovered his hearing.

Case 4.—Suppurative otitis media of five years duration, following local applications to the nares. Loss of left drum-head, polypoid growths, caries, death.

A young lady, aged twenty, who had been in the hands of an excellent surgeon in another city. He had first treated her nose, then her ear, had removed a polypus, but still there was an offensive discharge, for which she consulted me. I saw a polypus in the middle ear, but as she could not then remain for treatment, gave her a weak solution of bichloride of mercury (¼ grain to the ounce,) to use once or twice a day until she could return for treatment. She came back in three months, when no sign of a polypus was seen. (This is by no means unusual after the use of bichloride of mercury.)

The dry boracic acid treatment was begun, but it had no effect in stopping the discharge; other applications were made with like results. Carious bone was felt with the probe, which we intended to remove, but as she was called home suddenly owing to the death of an intimate friend, a simple antiseptic wash was given her until she could return, but she died in a very few days from what her physician pronounced to be meningitis.

Case 5.—Suppurative otitis media, with total loss of the right drum-head, with greatly impaired hearing following the surgical treatment of the naso-pharynx.

This was a very painful and protracted case from an adjoining State, which had also been in very skilled hands. He had had some nasal hypertrophies removed when a violent inflammation of the ear was set up, was treated for it for some time by the operator, and subsequently by one who made a specialty of the ear, but having a slight cessation of pain he visited relatives in Indianapolis and called on me. I found great tenderness all around the ear, though there was profuse suppuration. He was twice leeched very

freely, when he became much better; tenderness came up again over the mastoid process, but leeches and anodynes to said process and to the external auditory meatus again relieved him. Still much suppuration continued, and I lost sight of him as he had to leave the city.

Case 6.—Inflammation of middle ear in a man aged forty-five, following the removal of nasal hypertrophies by caustics. Treatment: leeches, hot fomentations, atropia, to external auditory meatus. Recovery in four weeks.

Case 7.—Severe otitis media on both sides in a child twelve years old, following excision of the tonsils. Recovery in three weeks after the free use of leeches and atropine solution.

Case 8.—Suppurative otitis media, with perforation of the left memb. tymp., in a young lady aged twenty-two, following the use of caustics to mucous membrane of the nose. Violent pain. Treatment: leeches, atropia, hot fomentations; partial recovery, relapse; hearing finally restored to $\frac{1}{2}\frac{0}{0}$.

This lady declares that she had hever been troubled with her ears before the treatment of her nose and throat had been begun; but on questioning her very closely she admitted that she had noticed a ringing and buzzing in one ear for a year or more before she consulted a throat specialist.

Case 9.—Suppurative otitis media, both sides, of very long standing, with extension of inflammation to mastoid antrum, from local applications to nares. Trephining the bone, followed by perfect recovery and restoration of hearing.

This was a young man aged twenty, who was brought by his physician to see if anything could be done to prevent the frequent relapses of acute inflammation and stop the discharge. On May 10, 1887, one could not touch the tragus nor draw the pinna backward without causing intense pain. The ex. aud. meatus was still very much swollen. Leeches were applied and hot solution of atropia was dropped into the meatus, after thorough gentle cleansing, and he got relief. He was brought from time to time to my office until July 10, 1887, when he complained of dizziness and vomiting occasionally. Much tenderness and redness was found at the back of the ear, and the auricle stood out a little too prominently, but the discharge of pus from the meatus was still copious. An incision was made down to the bone, which was perforated to the antrum with a large drill, when pus followed to the extent of half a tablespoonful. He immediately returned home, and his physician informed me that the discharge ceased and improvement took place immediately. He went to his work in two weeks, and when he came to pay me on September 26, 1887, the drum head was healed. His acuity of hearing $\frac{2}{2}\frac{0}{0}$, and he declared his hearing was as good as ever.

Case 10.—Suppurative otitis media, with perforation of both membranes, in a man aged 25, following the use of a caustic to nasal hypertrophic tissue. Very severe pain, long continued. Treatment, leeching. Hearing finally restored.

Case 11.—Was very similar to the above, from the same cause, in a man aged 45; but in this one permanent destruction of both drum heads followed, with greatly reduced hearing distance. He was treated by a physician related to him by marriage, which of course made it rather unpleasant for both parties concerned.

Case 12.—Suppurative otitis media, left side, with perforation of drum head, in a lady 23 years of age, following the use of caustics to nose. Long continued inflammation and suppuration, with final recovery of hearing.

Case 13.—Suppurative otitis media in a young lady 22 years old, during the treatment of "nasal catarrh." Perforation of drum heads, long continued suppuration, recovery left, extension to mastoid right, symptoms alarming; trephining of bone, rapid recovery, with complete restoration of hearing. She was brought by her physician on the 1st of April, 1888, with a profuse discharge from both ears which had defied all his efforts to control, and which seemed to promise nothing better in my hands for a while; but ultimately the left ear recovered. Late in May she had vertigo, constant vomiting for twenty-four hours, with intense headache. She was placed under an anæsthetic, the left mastoid process cut down upon and perforated by a large drill, which passed into the cavity with a jolt. Much pus followed. A drainage tube was inserted, and it was, of course, dressed antiseptically. The discharge immediately ceased from the ear. In one month she was well, and her hearing is now as good as before any throat or nose treatment had been entered upon.

Case 14.—This was an ordinary case of otitis media, with destruction of the drum head and subsequent suppuration, in a young married woman, following the local use of medicines to the nose for hypertrophic catarrh. Sickness of one of the members of her family took her from me, and I have not been able to hear the result.

Case 15.—Was very similar to the above, from the same cause, in a lady aged 24. After long treatment the discharge ceased and her hearing was almost as good as before.

Case 16.—Ulcerative otitis media in a man aged 38, with perforation of both memb. tymp., following the removal of nasal hypertrophic tissue. Treatment of no avail, hearing very much impaired. I simply saw him a few times after his hearing had been affected; first about three months afterwards, when he was bewailing his sad condition. He said nothing ailed his ears until his nose was treated. He could not then hear a watch unless pressed against each ear. Nothing that I could do benefited him. Again,

in six weeks, he came, but was no better. He was a very quiet, nice German; was so terribly depressed about his hearing that I should not be at all surprised to hear of his committing suicide.

Case 17.—Suppurative otitis media in a man aged 44; local applications for severe nasal inflammation. He recovered under leeching and atropia. Hearing as good as before nasal treatment.

Cases 18 and 19.—Were both cases of suppurative otitis media. In each did perforation of one memb. tymp. take place; both occurred during treatment of the nose. One recovered after three weeks of treatment; the other still has a discharge from the middle ear, with hearing very much impaired.

Case 20.—Differs from all the preceding ones. A delicate-looking woman, aged 33, was brought to me by a throat and nose specialist on account of her terrible complaints concerning her ears. He had removed some hypertrophic tissue from the nose, when she set up a terrible outcry about pain in the ears. I found that some inspissated cerumen prevented a view of the lower part of the ext. aud. meatus on one side. I gently removed this with a syringe, when the woman declared that I almost killed her, and she had to lie down. I gave her a solution of cocaine and atropia to put into the ear, and requested them to call the next day; but just as daylight began to dawn on the following day her husband awakened me, declaring that she was almost frantic with pain in the other ear. He had given her several one-sixth grain doses of morphia, which only partially relieved her. I ordered him to discontinue the use of morphia internally, supposing that she was addicted to its use, which he declared was not the case; that, on the contrary, she was religiously opposed to it. I gave him a simple solution of morphia to drop into the ear hot, apply hot fomentations, etc.; but he was soon back, declaring that his wife was tearing her hair with pain; that pains darted to her uterus, which hurt her just as badly as did the ear, and that it was all the result of the strong treatment which the throat specialist had used. I informed him that I could not continue the case, as it required that a physician visit her, which I could not do. Judge of my surprise when I found her walking into my office in one hour subsequently, feeling much better. On examining the ears I found every evidence in each of an old perforation of the drum head. I have not seen the case since, but have learned from the physician who first brought her that she is a hysterical morphine eater who came very near rendering his life a burden until he expressed his mind to her in as forcible language as the dignity of our profession justifies in such cases.

REMARKS.

While engaged in writing up these cases many similar ones have come under my treatment; indeed, not a week passes that I do not meet with at least one acutely inflamed middle ear, alleged to have been caused by applications of medicines to or operations upon the mucous membrane of the nose or pharynx.

This convinces me that such inflammations from said causes are of very frequent occurrence. Whether or not it is by direct continuity of tissue, or reflex, as claimed by Dr. Woaks, I shall leave to the judgment of my audience, my object being simply to record what I have seen, with a few suggestions as to the course to be pursued in anticipation, prevention and treatment of these exceedingly unpleasant and annoying complications.

Seeing, then, that such cases must be met with occasionally, it behooves every nose and throat specialist to make diligent inquiry of every patient by whom he is consulted as to the condition of his ears. He should not take the statement, "Oh, my ears are all right," but should test them with watch or acumeter and tuning fork; should ascertain the true condition of the drum head as to brightness or dulness, mobility, etc.; should particularly inquire about tinnitus, "stuffed feeling" in ears, etc.; and, above all, should not only keep in mind the fact that few ears remain perfectly normal when nose or throat disease is present, but should also so inform his patient. If this was done more often, the result would be better to the feelings of both patient and medical adviser.

Second.—Operations should never be made upon nor caustics applied to nose or pharynx during acute catarrhal inflammation of the parts.

Third.—Patients should be requested to report to us immediately on the first twinge of pain in the ear after these applications or operations have been made, so that we may combat them at the very inception.

Fourth.—The operator should be prepared to leech such cases early, as time is of the greatest importance. Many of these inflammations could be stopped almost immediately by this alone, He should also be ready to puncture the drum head before it is done by inflammatory action, and he should by no means delay the operation of perforating the mastoid process when extension to it has taken place; for, like the operation of tracheotomy, it is much more often delayed too long than made too early; and we must not forget that opening the bone often immediately relieves the patient of an exceedingly unpleasant and annoying discharge from the external auditory meatus.

It is well also to bear in mind that in the performance of this operation careful surgeons have done just as much with trephine and drill as have others with chisel and mallet, to say nothing of the elegance of the procedure or of the malposi-

tion of the transverse sinus, which could not be injured by skilful manipulators, no matter what instruments were handled.

Dr. Holbrook Curtis said that he objected to accepting the statistics as set forth in the paper, from the fact that Dr. Thompson did not state in what manner the caustics so frequently spoken of were employed, nor by whom employed; certainly by no rhinologist who was competent. He thought it was a serious reflection upon methods which are now in vogue and generally recognized as conservative and beneficial, and from which a long line of patients who are now suffering from chronic otitis media and tinnitus are destined to receive relief. The great future of rhinology lies in this especial direction, and to one who has had an experience of several thousand cases in which erectile tumefactions have been treated with chromic acid, and in but one case an acute otitis media observed, it comes upon one as a thunderclap to hear so many cases tabulated as being the result of rhinological work. Every rhinologist sees cases which have been maltreated by the use of caustics in incompetent hands, and the inference one must draw is that in certain localities there must exist a very ignorant class of rhinologists.

Dr. E. Fletcher Ingals, like the gentleman who had just spoken, thought middle ear disease extremely rare as the result of treatment of the nares by competent rhinologists. He could only remember one case, which came on ten days after a severe operation on the septum, and he doubted whether there was any connection between the two. However, he thought the paper well timed and exceedingly valuable.

Dr. Woolen: I arise to say, first, I am one of those doctors who lounge around Indianapolis, and recognize in the paper two or three of my cases, especially the last; second, my experience teaches me, as does the paper of Dr. Richardson, that many of these cases follow very slight causes and not after formidable operation and cauterization. I have never had them follow a formidable operation, but, as in my last, a small cauterization of anterior tips of inferior turbinated, and fourteen days after, following an exposure in a mine; and, third, that I never cauterize the posterior region of the nose, as suggested by some of the speakers. This is the region for the snare, and should never be subjected to the cautery, as suggested.

We regret to learn that Dr. Thomas Opie, Dean of the College of Physicians and Surgeons at Baltimore, and one of the most noted surgeons in the South, is lying dangerously ill from blood poisoning at his home in that city.

DISEASES OF THE ANTRUM.

Read in the Section of Oral and Dental Surgery, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY WILLIAM CARR, M.D.,

OF NEW YORK CITY.

In the preparation of this paper, it was not deemed necessary to describe the anatomy of the maxillary sinus or to mention all its pathological conditions, as the principal end in view was to present in a practical manner a few observations on that form of antral disease that is of especial interest to us as oral surgeons, namely, suppuration. Different authors vary in opinion regarding the causes leading to suppuration. The throat specialist and the dentist view this disease from the standpoint with which each is most familiar, and it is difficult to form an accurate estimate of the specific causes that produce the greatest number of cases. Zuckerkandl, in his treatise on "The Normal and Pathological Anatomy of the Air Passages," claims that a majority of the cases of suppuration of the maxillary sinus directly result from "the extension of the inflammatory process of the nasal mucous membrane, produced by continuity of tissue." That is to say, that rhinitis, either chronic or acute, may cause an inflammatory condition of the sinus and consequent suppuration. Zuckerkandl further says: "My experience with the inflammatory diseases of the lining of the maxillary sinus is, that they mostly follow pathological processes of the nasal mucous membrane, and accordingly the soft parts of the nasal and maxillary cavities are generally diseased together." This view is coincided with by a number of authors. From the advance sheets of Dr. Bosworth's new work on diseases of the nose and throat, I notice that he holds different views. He maintains that few, if any, cases can be traced directly to this cause, claiming that inflammation of the mucous membrane shows but slight tendency to extend from one anatomical region to another. This is doubtless true—we have all observed that an inflammatory condition of the mucous membrane of the oral cavity, although severe, seldom extends to other anatomical regions. As an argument to sustain his theory, Dr. Bosworth states that "but few persons suffer from antral disease compared with the great numbers who are affected with chronic rhinitis." At the same time, he admits that, in many cases, hypertrophic rhinitis produces antral disease—not by extension, but, because this hypertrophic process, in some manner, causes occlusion of the ostium maxillare.

Watson, of London, on "Diseases of the Nose," expresses the opinion that nasal polypi are the most frequent causes of suppuration of the maxillary sinus, from the fact that, in nearly every case, they originate near the ostium maxillare, and, as they develop, they produce an occlusion of the orifice.

Boerhave's researches show that "in its normal condition, the antrum contains a bland, inodorous, gelatinous, colorless fluid;" that this secretion keeps the walls moist, but does not accumulate in the sinus, it being partly absorbed, and, possibly, partly evaporated by the passing air current.

But, should causes operate to close the orifice of the sinus, the external air could not penetrate into it, nor could the air already in the cavity escape from it. In this case, the vascular system would act as a medium for the gradual absorption of the confined air, which would, necessarily, be replaced in the sinus by the secretion. But, as this secretion could not be absorbed as rapidly as exuded, the air yet remaining in the cavity of the sinus would decompose the accumulated mucus, thereby causing irritation and disease of the mucous membrane.

Thus, by closure of the ostium maxillare, it is possible, for the antrum to become diseased, and with its increased secretion, to produce ectasis of the sinus.

From this we can readily understand how nasal polipi and chronic rhinitis may, in many cases, produce antral disease. While I admit that antral diseases are produced by these causes, yet I am convinced, from the number of cases that have been under my immediate observation, that fully 80 per cent. of the cases of suppuration of the antrum are caused either directly or indirectly by diseased teeth. When we consider the anatomical relation of the teeth to the antrum, that they are separated only by a thin layer of bone, and, frequently, the roots of the teeth form protuberances in the floor of the antrum, or actually penetrate into it, when we consider the vascularity of the alveolar process, and the frequent pathological changes of the teeth and their alveoli—these changes being pericementitis, alveolar abscess, alveolar periostitis and necrosis, we can easily comprehend why diseased teeth cause such a large percentage of antral disease.

The symptoms of antral suppuration vary with the exciting cause. When the ostium maxillare is closed either by hypertrophy, nasal polypi or inspissated mucus, the first symptom may be only slight febrile disturbance; but the disease is often ushered in with intermittent fever and rigors accompanied by violent pains, a sense of weight and pressure in the sinus, with distension of its walls, soreness of the teeth and œdema of the cheek. If the suppuration is due to defective teeth, the above symptoms are usually absent, excepting the copious discharge from the nostrils. The natural orifice into the meatus is usually found unobstructed, and the mucous membrane of the facial surface greatly congested as in severe cases of pericementitis. After diagnosis has been established, the treatment of antral suppuration is simple in its character. If caused by obstruction of the ostium maxillare, the obstruction should immediately be removed, and an effort made to effect a cure through the nares. Should this be unsuccessful, the question arises: Where shall an opening be made for evacuating the sinus of the accumulated secretions, and for subsequent treatment? Various operations have been suggested for this purpose. Owing to a natural hesitancy to remove sound teeth, it has been suggested that an opening be made in the meatus below the inferior turbinated bone. I believe this operation is unjustifiable. While the opening may be made without difficulty, it would be repugnant to the patient, the operation seeming to the patient to be more formidable than it really is. Neither would it afford the same facilities for thorough cleansing as would an opening through the alveolus. I should never hesitate to make an opening through the alveolus even at the sacrifice of a sound tooth, and, in such a case, should be governed in my choice of extraction by the character of the tooth, always selecting the weakest. By preference, I should extract the second molar, as this makes an opening nearer the centre of the floor of the antrum; but if either the first or the third molar, or the second bicuspid is defective, I should remove it. Should it seem best to extract the second bicuspid, I should drill upward and slightly backward, as, at this point, the floor of the antrum is thicker than at the other points mentioned. In case the teeth on the affected side are all missing, I should select the point corresponding to the second molar. If the trouble arises from decayed teeth and necrosis is present, all necrosed bone should be removed. Before commencing either to remove necrosis or to make an opening into the antrum, a 10 per cent. solution of cocaine should be applied to the gums three or four times in order to produce local anæsthesia of the mucous membrane. The operation is then performed with but slight inconvenience or pain to the patient. The opening being established, the antrum should be thoroughly cleansed with tepid distilled water, to which a little salt has been added, until all traces of pus have disappeared. If the discharge is offensive, the cavity should be syringed with permanganate of potash, and dressed with a stimulating solution composed of carbolic acid 1 drachm, glycerine 1 ounce, and distilled water 7 ounces. Or, if preferred, Dobell's solution or Listerine may be applied. The cavity should be cleansed twice daily with salt water, followed by either of these stimulating solutions until the discharge diminishes, when this treatment once daily will be sufficient. Should the orifice in the meatus be closed by inspissated mucus, the patient should be instructed to use either of the above stimulants several times daily, by means of a nasal spray, until the obstruction is removed.

Some practitioners insert a silver drainage tube

through the orifice, which is kept in place by ligatures. I see no advantage to be derived from this practice, as thorough cleansing twice daily is all that is required. Besides, there is always the possibility of food being pressed through the tube into the sinus, or of becoming clogged at the entrance, so that the end sought is not attained. I prefer the method suggested by Dr. Abbott, of closing the opening by means of a broom straw, serrated and wrapped with carbolized cotton, then pressed firmly into place, and retained by ligatures to the teeth. If there are no contiguous teeth, a plate may be inserted with a projection one-half the size of the orifice, and this projection wrapped with carbolized cotton to fill the remaining space. This is sufficient to exclude all foreign substances. After the discharge ceases, the cotton should be diminished in quantity daily, thus permitting the orifice to close gradually. This is the only treatment that I have used, and it has been uniformly successful. The following is a brief history of a few typical cases that I have treated:

Case 1.—Mr. M., æt. 33, who stated that, until within two years, he had been in perfect health. He then noticed an offensive discharge from the right nostril which usually disturbed him greatly upon retiring, causing violent coughing when lying upon the left side. Also, upon arising in the morning, he experienced nausea, which continued until the nasal cavity had been entirely cleared. He supposed that he was suffering from catarrh, for which he sought and received treatment, at intervals, for twenty-two months, when the following additional symptoms were manifested: At intervals of three or four days, he experienced attacks of vertigo, followed by severe otalgia, and great tenderness of the teeth. For these symptoms, he was treated by his family physician for three months, who finally advised him to consult me regarding what he supposed to be an alveolar abscess. The right side of his face was then greatly swollen. Upon examination, the full number of teeth were found, but the second bicuspid had been filled, and was pulpless. My diagnosis was not that of simple alveolar abscess, but of suppuration of the antrum. The extraction of the second bicuspid was followed by a slight flow of pus. A further examination showed the alveolar process greatly necrosed, but there was no visible opening into the antrum. After an application of cocaine all necrosis was removed and an opening made into the antrum, when a great quantity of offensive matter escaped. The lining membrane of the antrum had thickened to at least ten times its normal thickness; this pathological condition I have found in all chronic cases upon which I have operated. Upon proceeding to syringe the sinus, I failed to establish an outlet through the opening into the nares. The sinus was first cleansed with salt water, then with permanganate of potash, after which the orifice was closed in the manner already described. The patient was then directed to use Dobell's solution by means of a nasal spray, in order to remove any secretion from the nares. The following day, the pledget of straw and cotton was removed, when the discharge seemed greater than on the previous day. The opening through the meatus had by this time been established, and the cavity was thoroughly syringed with hot water until all traces of pus had disappeared. Then it was cleansed with a stimulating solution and the pledget removed. This treatment was continued daily for three months, when the case was cured and the patient dismissed. I have seen him since, at intervals, during the past three years, and there are no signs of recurrence of the disease.

Case 2.—Miss J., æt. 30, had considerable discharge from the right nostril, and had been treated for catarrh. The right side of her face was greatly swollen. Upon the affected side were found the second and third molars, the first bicuspid, and the canine in a healthy condition. The first molar and second bicuspid had been extracted for alveolar abscess three years previously. The swelling of the face had appeared twice before, for which she had been treated by her family physician. After lancing, a free discharge of pus followed and an opening was found into the antrum. After the usual treatment for five weeks, the discharge ceased, all the parts resumed their normal condition, and the opening in the antrum was allowed to close. In this case the suppuration was caused by one or both of the teeth previously extracted for alveolar abscess.

Case 3.—Mrs. P., æt. 45 years, who had been suffering for several years from intermittent fever, and had also been for some time troubled with a discharge of an offensive nature from the left nares which had been diagnosed as catarrhal, called to consult me about a first molar. Examination showed that all the teeth, from the canine including the third molar, had been removed, excepting the first molar. This was badly decayed, loose, and upon pressure, pus oozed from the socket. The tooth was extracted, disclosing a cavity into the antrum corresponding to the roots of the teeth. The extraction was followed by a copious, purulent, offensive discharge. There was considerable necrosis present. After treatment for over two months without any perceptible improvement, the patient left the city for the summer, and was under treatment while absent. At the expiration of four months, she returned, yet without improvement. Upon a thorough examination, a septum of bone, about one-quarter of an inch in height was found rising from the floor of the antrum, dividing the cavity into two parts. By means of a chisel, this septum was removed and found to be composed of cancellous tissue.

After this operation, the case readily yielded to treatment, and a recovery resulted.

Case 4.—Mr. J., æt. 23 years. In this case, there was no nasal discharge, the orifice from the sinus being closed by inspissated mucus. He complained of great weight and pressure on the affected side, severe otalgia and deafness. The second bicuspid was missing, and the first molar having a large amalgam filling was pulpless. This tooth was extracted, leaving a large opening into the antrum. There was also considerable necrosis, which was removed, and the usual stimulating treatment pursued for about four weeks, when the discharge ceased, and all other abnormal symptoms disappeared, excepting the deafness.

Miss S., æt. 19 years, consulted me with regard to a large swelling of the right side of her face. Before examination, I supposed that she was suffering from alveolar abscess; but to my astonishment, upon examination, all her teeth were found in a healthy condition, and the arch appeared unbroken. This clearly did not indicate alveolar abscess, but rather a diseased antrum. As the teeth all seemed to be present, I inquired whether she had previously received a blow upon that side of her face, or whether she had not recently contracted a severe cold. Receiving a negative reply to these questions, I made a second examination, and found that the first bicuspid was missing. She positively assured me that none of her teeth had been extracted. As the swelling pointed to the palatine as well as the facial surface, I lanced both surfaces, and was enabled to pass a probe from the facial surface into and through the floor of the antrum. She was dismissed until the next day, when I made a careful exploration of the sinus by means of an excavator, and found in the floor of the antrum the missing tooth imbedded in the inner coat of the mucous membrane, its apex toward the alæ. After the swelling subsided, the tooth was dislodged by means of a hoe excavator, and removed by means of a long, narrow-beaded forcep. After four weeks' treatment, the case was cured.

During the past eight months, in addition to the cases in my own practice, I have operated upon fourteen cases of diseased antrum for a throat and nose specialist. Of these cases, none resulted from chronic rhinitis, none from hypertrophic rhinitis, one from dentigerous cyst, two from polypi and eleven from diseased teeth. This seems to me clearly to refute the assertions of the authorities previously mentioned—that suppuration of the antrum is generally due to causes other than diseased teeth.

DR. RICHARD VOLKMAN, the famous surgeon of Halle, died at that city on the 28th ult.

REPORT ON INTUBATION OF THE LARYNX.

Read in the Section of Diseases of Children, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY F. E. WAXHAM, M.D.,

PROFESSOR LARYNGOLOGY AND RHINOLOGY COLLEGE PHYSICIANS AND SURGEONS, OF CHICAGO; PROFESSOR LARYNGOLOGY AND RHINOLOGY POST-GRADUATE SCHOOL, OF CHICAGO.

It is my pleasure, Mr. Chairman, to report that intubation is still growing in favor, and fulfilling the expectations of its advocates. At the last meeting of this Association, I reported 150 cases coming under my personal care, with forty-one recoveries or 27.33 per cent. During the past year I have operated sixty times, with twenty-eight recoveries or 46.66 per cent.; making a total of 210 cases with sixty-nine recoveries or 32.85 per cent. The operation performed as it is, as a last resort, when the patient has been given up to die and other measures have been tried in vain, a saving of one out of three is a most satisfactory result, and places the procedure in the front rank among the life-saving operations.

It will be observed that the percentage of recoveries during the last year has been much larger than before, amounting to nearly 50 per cent. An interesting question arises as to the cause of this greater success. Some have unkindly attributed it to unnecessary operations, operations performed early and upon those that might have recovered under judicious medical treatment. It is only necessary, to say in reply, that more than nine-tenths of these cases are in consultation with other physicians, and the operator has been called only as a last resort.

The operation is not performed early, but in many instances only after the patient has become moribund and unconscious. Early operations do not enter into the question of increased success as the operations during the past year have been performed under the same conditions and circumstances as before. The question of treatment and its influence upon the results is an interesting one, but the observations have been too few to be of any great importance in this direction.

Of the sixty cases coming under my care during the past year, nineteen were treated with the bichloride of mercury, both before and after the operation, with nine recoveries or 47.36 per cent. Twenty-eight cases were treated with this agent, after the operation only, with fourteen recoveries or 50.00 per cent. Thirteen did not receive the bichloride of mercury either before or after the operation, and there were five recoveries or 38.46 per cent.

The type of the disease prevailing during the past year has not been different from that in former years, and the cases have been of equal severity.

The success during the past year I attribute to two causes: Improved methods of feeding and

greater experience, and better judgment in the management of the cases.

During the past year the greatest advance that has been made, has been the discovery of the proper method of feeding. The greatest objection that has ever been raised to intubation has been on account of the difficulty of feeding.

The falling of fluids and semisolids into the trachea, and their entrance into the finer bronchi giving rise to broncho-pneumonia, I have no doubt has too frequently been the cause of death. The objection and the dangers have been overcome by the adoption of the inclined position with the head down, during feeding or when drinking. One year ago I presented to this section a set of tubes with artificial epiglotti. These tubes answered a useful purpose, and were a great improvement over the open tubes while feeding in the upright position, but in the inclined position they are unnecessary, as patients can swallow in this positition without difficulty.

Another cause of the greater success during the past year, is to be found in the increased knowledge that comes with experience, and the more watchful care of patients. Many cases have been saved only by the most watchful attention, and by timely interference.

A frequent cause of death is detachment of membrane and sudden suffocation from obstruction below the tube. This danger has never been exaggerated, but too frequently ignored. To overcome this danger I have had the tubes constructed with less swelling in the centre that they may be easily expelled. If they are ejected every few hours, no harm is done providing the operator is within reach to replace them. In case of partial detachment of membrane, which will be indicated by a hoarse cough, we should not wait, but anticipate the danger by removing the tube. The expulsive cough following the removal of the tube almost invariably expels the membrane.

Nothing is more dangerous in these cases, than to introduce a large tube that fits tightly and which cannot be expelled, and then leave the patient in fancied security. The record of my cases for the past year is as follows:

Age.	Cases.	Recoveries.	Per cent.
Under 2 years	11	3	27.27
Between 2 and 3	8	2	25.00
" 3 and 4	9	4	44.44
" 4 and 5	17	8	47.05
" 5 and 6	4	3	75.00
" 6 and 7	3	3	100.00
" 7 and 8	5	4	80.00
" 8 and 9	2	1	50.00
One 12	1	0	00.00
	60	28	46.66

Remarks.—The youngest child operated upon was 6 months old. Those under 2 years that recovered were 15, 18 and 18 months, respectively. Every case, with one exception, was characterized by membrane formation. In the exceptional case the stenosis of the larynx was complicated with a severe form of measles, and the patient died.

240 Wabash avenue.

Dr. Geo. W. Gay, of Boston, said that the statistics of the Boston City Hospital were slightly in favor of tracheotomy, but intubation is more frequently done, being, on the whole, easier to perform. Of 327 tracheotomies 95, or 29 per cent., recovered; while of 223 intubations 47, or 21 per cent., recovered. In some cases, however, it was impossible to introduce the tube into the larynx. To perform intubation requires as much assistance as it does to make a tracheotomy, and there is as much danger of death on the operator's hands as there is during tracheotomy. In 310 cases of tracheotomy 10 had died from ether, shock, prostration or hæmorrhage; in intubation an equal number of cases died from strangulation or shock. Even if deposited with the utmost care, there was a moment of strangulation in every case. If this did not immediately pass off, the tube should be removed, and the membrane which causes the obstruction will be coughed out. It is dangerous to persistently try to force in a tube that always causes strangulation. When stenosis is not relieved by the intubation tube, when swallowing is impossible, or when the tube is constantly coughed up, tracheotomy is indicated. In 32 cases in which tracheotomy was done, after intubation had failed to give relief, 3 had recovered. There is no fixed treatment for croup, aside from the operation. He had used bichloride of mercury faithfully for two years. At one time he thought he saw benefit from it, but now he said that the facts do not warrant any conclusion. Feeding after either operation is most important; after intubation it should be done with the child lying on the side or on the back, with the head well down. There is no pathological evidence that the inspiration of food causes death. It is well known how the tracheal canula blocks up after tracheotomy. After intubation it does not. The trachea may fill up below the tube, but the tube remains clear. Outside the hospital Dr. Gay performs intubation among poor people who cannot properly care for a child after tracheotomy. He saw the child as often as he could. A certain number will always be lost from inability to find the operator when the tube becomes blocked, or when it is coughed out. In his judgment intubation is the better operation in ordinary cases.

Dr. Denison, of Colorado, said that from 60 to 70 per cent. of the deaths after intubation were the result of pulmonary complications. He had operated upon 25 cases, with 7 recoveries. Nine of the deaths were due to œdema of the lungs. In Colorado, on account of the rarefaction of the air, breathing is difficult, and little children were

very seriously affected by it. In one of his cases he noted that the pulse was very weak during inspiration, and stronger during expiration. The blood could not get out of the thorax during the labored inspiration, and this greatly interfered with the heart's action. He operated, and recovery resulted.

DR. E. F. BRUSH said that he had written the first article on intubation. He found Dr. O'Dwyer patiently working in his laboratory, perfecting the operation and apparatus, and was given permission to publish the results of Dr. O'Dwyer's work. He had gone enthusiastically into the use of intubation, but his results so far had not been favorable. He had performed 23 intubations, with but one recovery. One was an adult, who lived twelve hours after the operation. Experience leads him to agree with Dr. Gay as to the necessity of great care in the introduction of the tube. When called as a consultant it was necessary for the physician to carefully examine the case. It was useless to operate for pulmonary œdema, which might be mistaken for croup. He doubted the entrance of food into the lungs, and said he thought it was the great irritation set up by the cough that brought on the pneumonia when it was not the result of extension of the throat disease.

DR. J. A. LARRABEE'S experience was confined to tracheotomy. From the reports up to the present time the honors were about even between the two operations. Intubation was credited with being easier than tracheotomy, but this arose from different personal experiences. Some men acquired a delicacy of technique, like that of Tait in ovariotomy, or Waxham in intubation, which few can possess. To him intubation was the more difficult operation. It was more popular among the people, because it appeared to be a less formidable operation. No distinction is usually made by operators between croup and diphtheria, but he believes that such a distinction should be made. Membranous croup is a local disease, an exudation without sepsis; diphtheria is a systemic infection. In croup we operate and cure; in diphtheria, operation relieves but one symptom, and there is still the systemic disease to fight. Tracheotomy gives better results, because it does not interfere with medication and the administration of food. In infants under 2 years of age and in croup, intubation held the first place; for other cases tracheotomy was preferable. To prevent blocking up of the tubes he used a sponge saturated with warm water placed over the opening of the canula; also stemming of the tube. He was in the habit of pouring into the trachea a drachm of a solution containing chlorinated soda, and found it of great benefit.

THE CLINIC.

THE TREATMENT OF WOUNDS INVOLVING NERVES, TENDONS, AND MUSCLES.

A Clinical Lecture Delivered in the Albany Hospital, Oct. 26, 1889.

BY ALBERT VANDERVEER, M.D., PH.D.
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[Reported for THE JOURNAL.]

Gentlemen: Permit me to call your attention this morning, in a practical manner, to the management of incised or lacerated wounds involving important nerves, tendons, and muscles. To come directly to our subject we shall present to you a patient, Mr. J. G., aged 22, single, native of the U. S., and by occupation a cigarmaker. He presented himself and was admitted to the hospital two days ago, with the following history: Two days prior to his admission he became involved in a saloon brawl and was struck by a beer glass which broke and inflicted a lacerated wound of the forearm. Hæmorrhage was very free and evidently arterial in character. A physician was called who applied a compress and firm bandage, which was allowed to remain until he applied for treatment at the hospital.

Upon examination at that time the hand was dark colored, much swollen and cold, owing to the compression of the bandage. The dressing was immediately removed, the wound washed, and a moist antiseptic dressing applied, together with moist heat. The first thing necessary was to restore circulation in the constricted parts, in which we have been fortunate. We will now remove the dressing and proceed to an examination of the present condition of the arm. You will observe that the wound is located about two inches above the wrist, beginning at the ulnar border and extending irregularly across the arm for an inch and a half. Its borders are elevated and irritable in appearance. There is an escape of bloodstained serum from the wound. The whole arm is yet swollen, and the circulation is feeble. When requested to flex the fingers the patient is unable to move the little, or ring finger, nor is he able to bring the thumb in apposition with index finger. He cannot flex the wrist to the ulnar side or move the fingers latterly. With the needle an area of anæsthesia is found along the ulnar border of the hand and involving the little and lateral half of the ring finger. The area of anæsthesia does not approach the borders of the wound. Upon closer examination portions of divided muscle and tendon appear in the wound. The pulsation in the ulnar artery is absent at the wrist.

Now what has happened? From the paralysis, both motor and sensory, we know that the ulnar nerve has been divided, or at least its func-

tion destroyed. The free hemorrhage, embarrassed circulation, and the location of the wound, all indicate a wound of the ulnar artery. The presence of muscle and divided tendon in the wound tells us of the damage done to the great flexors of the fingers. Here then we have a divided artery, nerve and tendons which have been under treatment for four days. Shall we continue our present mode of treatment? Shall we adopt a new method? The wound has already improved in appearance. The patient has no material rise in temperature. His general condition is good. But what are the consequences? This patient may have a secondary hæmorrhage at any moment. The wound, if not already infected, is exceedingly liable to become so, and suppuration threatens.

Again, the occupation of the young man requires both hands for him to gain a livelihood, and we can hope for no restoration of function in the severed muscles and tendons, or in the severed nerve. We have ahead of us cutaneous ulceration, causalgia, œdema, and muscular atrophy as tropic changes following division of nerves. Beside there is likely to follow the division of the ulnar nerve, that characteristic distortion, *main en griffe*, or claw hand. Manifestly much more is to be desired, and I believe can be promised, by an immediate operation, to which the patient has consented.

While the house surgeon is etherizing the patient we will recall to your minds the results obtained in similar cases treated by immediate suture in this clinic. First, the case of the carpenter who injured his hand in a planer. He had several incised wounds, compound and comminuted fractures of the outer metacarpals, division of the extensor tendons, and wounds of the palmer arch. Under ether we are able to control the hæmorrhage, to cleanse the the wound by warm mercuric chloride (1-2000,) to remove the detached fragments of bone, to suture the tendons, and close and drain the wound. By careful antiseptic and fixed dressing we were able to give him a useful hand, with considerable power for extension.

The case of the colored man, wounded at the wrist by a broken pane of glass, opening the joint and dividing tendons. Cleansing and tendon suture with a most happy result.

The case of the child wounded by falling on a broken bottle, dividing the sciatic nerve in the thigh, high up. Treatment neglected for a year, when the cicatrix was divided and an unsuccessful effort made to find divided nerve ends and suture them.

The case of the young man who received a wound of the fore-arm, dividing tendons, arteries and nerves, and was treated without tendon or nerve suture. All these cases and the subsequent condition of the patients will be fresh in your minds.

As the patient is now ready we will proceed to the operation, beginning with an incision extending from the wound upward along the ulna two inches. A large blood clot is uncovered and turned out from between the layers of muscle. Hæmorrhage commences from the divided artery, which is immediately ligated at both ends. The cavity is thoroughly flushed out with warm mercuric chloride solution (1-2000), bleeding points ligated. The extensor tendons of the ring and little finger are found divided and are sutured by fine Chinese silk. Lastly, the divided ulnar nerve is caught up and carefully sutured in a similar manner, The wound is again irrigated with mercuric-chloride solution (1-2000), and closed by interrupted catgut sutures, a small drain being necessary in this neglected wound. Over all an antiseptic dressing of iodoform gauze and Gamgee pads. The arm is now placed in a posterior splint, with the hand well flexed and protected. This wound will undoubtedly heal kindly. Splint should be removed at the end of two weeks, and gentle passive movements commenced to prevent adhesion of tendons. It will be some time before the restoration of the function of the ulnar nerve. In this case we have from experience a reasonable hope for a favorable result.

Finally, gentlemen, I hope you will pardon me for going so much into the details, but I am convinced that if you will faithfully employ the method which you have seen to-day, in the immediate treatment of similar injuries, you will be amply repaid in success for your time and kindly attention.

November 4 and 9 the wound was re-dressed. No suppuration, parts healing rapidly. On the latter date patient could flex all his fingers slightly, but not encouraged to do so. Sensation was returning rapidly to parts supplied by the ulnar nerve.

MEDICAL PROGRESS.

AN EPIDEMIC OF ULCERATIVE VACCINIA.—At a recent meeting of the *Académie de Médecine*, M. HERVIEUX reported the results of his investigations, relative to the appearance of ulcerative vaccinia among the school children of Motteaux Bois. Of thirty-eight children vaccinated thirty-seven presented the abnormal symptoms observed; these symptoms as they appeared on the thirteenth day after vaccination, consisted of intense inflammatory action, abundant suppuration, lymphangitis, œdema, fever and delirium. The period of incubation was eight, ten and twelve days. Six weeks after vaccination, nearly all of the children had entirely recovered. The virus was obtained from a boy 9 years of age, who presented an entirely healthy appearance with the

exception of lymphatic enlargements affecting the axillary, submaxillary and cervical glands. The boy's parents appeared healthy, but refused to submit to close inspection. A diagnosis of syphilitic infection was first made by the physicians who examined the cases, but this was subsequently changed because of the shortness of the period of incubation.

PHYSIOLOGICAL ACTION OF THALLINE AND ITS CONTRAINDICATIONS.—As the result of his experiments in the use of thalline M. ALBERT ROBIN formulates the following conclusions:

1. Thalline is a poison to the blood globules, the nervous system, and in general to tissues rich in sulphur and phosphorus.

2. Its antiseptic action within the organs of the body is insignificant and transitory.

As a corollary of its physiological action the following conclusions may be drawn:

1. Inasmuch as the antipyretic properties of thalline are united to its toxic effects upon the nervous system and upon the red globules of the blood, this remedy is a false and dangerous antipyretic which should be proscribed in the treatment of fevers.

2. Its power of retarding the elimination of uric acid renders it unfit for use in the uricæmic affections, and consequently in the greater number of cases of arthritis and nephritis.

3. Its prolonged employment tends to produce anæmia and to provoke in time more or less marked nervous disturbances.

4. The study of the effects of thalline points to the entire contraindication of the remedy.—*Le Bulletin Méd.*

STERILIZATION OF MILK FOR INFANTS.—DR. J. EISENBERG recommends the following plan for the sterilization of milk for nursing children: To prevent infection by the lactic ferment or by other microbes the milk should be suitably diluted with sugar water and then poured into bottles of convenient size. The bottles are then stoppered with cotton placed upon a wire tray and plunged into boiling water where they remain for 30 or 40 minutes until sterilization is complete. The contents of the bottles will remain free from alteration for many days. When it is desired to use the milk the cotton plug is withdrawn from one of the bottles and the nipple immediately adjusted.—*Wien. Klin. Woch.*

A CONTRIBUTION TO THE PHYSICAL DIAGNOSIS OF THE INTERNAL ORGANS.—RIESS (*Central. für Klin. Med.*) contributes the results of experiments in the diagnosis of internal organs.

Percussion of the Kidneys:—Riess directs attention to the percussion of the kidneys which he thinks deserves more attention than it has received hitherto inasmuch as it enables us to obtain the principal dimensions of the normal kidneys. In 30 male individuals he was able by means of strong percussion to outline the kidneys on both sides; their distances from the median line varied from 7¼–11 cm. on the right side and from 7–10 cm. on the left side. In four cases the inferior borders on both sides could not be definitely determined; in a fifth case there was the same difficulty—on the left side alone. The average distance from the crest of the ileum was 2 cm. on the right and 2.5 cm. on the left side. In pathological conditions kidney percussion is especially important as a means of deciding whether the kidney is in its proper location; in the majority of such cases percussion leaves no doubts. Kidney percussion is also important in determining the presence and size of the enlarged organ.

The So-called Metamorphic Respiratory Sound.—Riess is of the impression that this so-called symptom is by no means of rare occurrence. With the exception of a single case it was always found in connection with cavities; generally several large bronchi were found opening into a cavity. Riess believes with Seitz that this sound is a stenosis sound and explains it in this way: at the commencement of inspiration only one of the bronchi opens, this bronchus is small and in comparison with the other bronchi and the cavity itself it represents a narrowed canal; through a definite increase in the negative pressure established in the interior of the lung by inspiration, one or more of the other bronchi expand, the entering air is divided into several streams and the stenosis disappears.

TRANSMISSION OF DISEASE BY DENTISTS AND HAIR DRESSERS.—A discussion has recently taken place in Paris relative to the possibility of certain diseases through the agency of dentists and hair dressers. The discussion arose in connection with a report made by Dr. Lancereaux before the Council of Hygiene in the course of which he quoted an American dentist, Dr. Cochrane, upon the transmissibility of pulmonary phthisis by means of dental instruments.

Dr. Dujardin-Beaumetz said that he did not believe that such a transmission had been demonstrated.

In his conclusions Dr. Lancereaux requests that he be advised of the danger incurred by their patrons in the use of instruments used upon numerous individuals and that dentists and even physicians be invited to carefully disinfect their instruments whenever used. After a long debate in which the difficulty of carrying out such measures was discussed the following provision of Dr. Lancereaux's report was adopted—viz.: that in every school where there are boarders each pupil shall have his own comb and brush which shall be kept for his individual use.—*Le Bul. Méd.*

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SATURDAY, DECEMBER 21, 1889.

TO LIMIT THE CASTRATION OF WOMEN.

DR. C. TRUESDALE[1], of Rock Island, in commenting on DR. MILLER'S[2] "Laparotomy Record," writes: "My first impression after reading said 'record' was that it was designed as a travesty on the frequency and recklessness with which the operations detailed in the report have been performed during the past five years; but on a more close examination I am convinced that the author intended it to be accepted as a correct report of what he actually did, and that it would be considered by the profession generally as a very brilliant feat of gynecological surgery. Assuming such to be the case, I am reluctantly constrained to say the report, as a whole and in detail, is simply astounding and to me incomprehensible. Forty-two women spayed, unsexed, mutilated in one year in a small out-of-the-way town in West Virginia!"

In the record, thus forcibly referred to by Dr. Truesdale, Dr. Miller does not enlighten us to a sufficient degree on the conditions and indications under which his operations were performed, so that we do not feel justified in entering into a detailed criticism of his "Year's Work in Laparotomy." Yet, in passing, we must confess our hearty sympathy with Dr. Truesdale in his indignant protest against what appears to be an unparalleled example of recklessness in abdominal surgery. Dr. Miller's boldness is not lessened by the fact that his so-called report is merely a list of alleged successful abdominal sections. It is of little scientific value, inasmuch as the anatomical material has not been utilized, and because the ultimate results of the operations have not been stated. We allude to Dr. Miller's record merely as a text. Recklessness in the performance of TAIT'S operation is well-nigh universal, and it is high time to consider some effective method of limiting this pernicious activity. Within a very recent period three typical instances of the removal of the uterine appendages in the absence of a sufficient indication have come under our own personal observation, which we beg to note in the further illustration of the awful abuse of a valuable operative procedure. In the first case a young woman was supposed to be afflicted with a symmetrical mural fibroid about the size of a fœtal head at term. The ovaries and tubes were promptly removed, but the uterine tumor continued to grow rapidly until, at the expiration of six months, the patient gave birth to a finely developed boy. While this case settles the question of ovarian influence in the determination of labor, and, therefore, is of considerable scientific importance, its history will never receive a more permanent record than the present fugitive notice.

Our second case is that of a wife in excellent health who had given birth to a child every two years for a decade. Fearing further increase in the family she consulted a prominent surgeon on the score of ovarian pain, in the absence of any demonstrable anatomical change. Tait's operation was done, and now both the surgeon and the woman are happy—the one over a successful laparotomy, and the other on her freedom from childbearing. Of course the woman lied, but this fact does not palliate the surgeon's criminal stupidity in diagnosis, nor his unwarrantable haste in operation.

The third case presents an example of the transcendental casuistry by which a man of average candor and honesty may bring himself around to the commission of an atrocious crime. A young, highly educated woman, of a rather nervous temperament, is happily married for the space of three or four years. Eighteen months after marriage she becomes the mother of a healthy child; one and one-half years later a second in-

[1] Am. Journ. of Obstet., October, 1889, p. 1,045.
[2] "A Year's Record of Seventy-five Successful Cases of Abdominal Section," B. Curtis Miller, M.D., Charleston, W. Va. Am. Journ. of Obstet., July, 1889.

fant comes into the world. About the time of the birth of the second child the husband acquires the morphine and cocaine habit. The wife, passionately devoted to him, is at once thrown into a nervous, hysterical state, and her importunate solicitude irritates her husband into still greater excesses. Upon the occasion of one of these uncommonly prolonged debauches the wife takes a dose of chloral with suicidal intent. At last the husband, who is not unfamiliar with medicine, conceives the idea that his wife's tubes and ovaries are at the bottom of the domestic troubles, and he seeks professional advice. Bimanual exploration fails to reveal any anomaly whatever of the pelvic viscera. Moreover, the history of the two recent, normal pregnancies at short intervals is brought forward in evidence of the physiological condition of the woman's genital system. Finally the wife herself asserts, in the presence of witnesses, that her nervous condition is due solely to her anxiety about her husband's unfortunate habit. By more than one physician the husband is urged to reform himself, as the surest means of curing his wife. But all to no purpose, for the man, in his wretched, irresponsible state of mind from the use of narcotics, finds a legally qualified practitioner that immediately relieves the wife of her perfectly normal tubes and ovaries. The woman has recovered from the operation, but her state of mind is unchanged, and it must remain unchanged, so long as the original cause of the mental disturbance is operative. As before remarked, this case is of especial interest to the student of casuistry, to whom may be left the analysis of the peculiar mental process by which this practitioner brought himself to the point of operating.

Only a few months ago a case was unblushingly reported in the *Boston Medical and Surgical Journal*, in which normal tube and ovaries were cut out of the body of a young unmarried woman under the indication of masturbation!

It is needless to multiply examples of this prostitution of surgery. Let us turn to the more hopeful topic of prevention. To begin, it may be said that the profession itself is amply able to arrest the further progress of this horrible heresy. There is no occasion to institute a crusade, to invoke the power of the press, as HORACE GREELEY did against bleeding; neither is the necessity apparent of calling upon the "Society for the Protection of Women," nor upon the local and national Legislatures.

The method of limiting the castration of women that we propose is simple, and we believe it will prove efficient. Make it an essential condition to the performance of Tait's or of Battey's operation, in all cases presenting no gross tangible lesion of the organs, that there shall be held a consultation of at least three responsible physicians.

We believe that this plan would secure accuracy of diagnosis. Now, it is a fact that the expert spayer of women is not always equally adroit in the recognition of anatomical changes nor in the interpretation of morbid processes. And the best of men often mistake the nerve-counterfeits of uterine and ovarian disease. WILLIAM GOODELL[1] has raised a voice of warning upon this topic, which merits the serious attention, that it will doubtless receive. Then, too, when this condition is fulfilled, we are of the opinion that slight and harmless enlargements of the ovaries will be regarded less frequently as morbid phenomena under such euphonious titles as "ovaritis," "cirrhosis" and "cystic degeneration." This statement does not deny the existence nor the moment of such pathological alterations, but it does imply that insignificant changes in the ovarian stroma, in the one case, and in the ovisacs, in the other, are often misnamed, and invested with a purely imaginary dignity in pathology.

BENJAMIN RUSH did not like consultations. He said they were the ineffectual result of neutralized opinion. But this "neutralized opinion" and its consequent delay in action represents exactly the end, we hold distinctly in view.

For a long period, the formal assent of three qualified practitioners has been insisted upon as a necessary condition to the artificial induction of abortion, and experience has demonstrated the wisdom and efficiency of the injunction. In former times, this operation was abused much in the same manner and degree that the castration of women is now prostituted. But under the influence of this condition—the primary factor, as we think,—clear and distinct indications have been formulated, which determine the action of all physicians, that respect their art and reputations.

It goes without saying that the consultants

[1] "The Abuse of Uterine Treatment Through Mistaken Diagnosis." The Medical News, December 7, 1889, p. 621.

must be responsible men, the peers of the would-be operator, and not subordinates, that might naturally be expected to echo the opinions of their chief.

LOCAL MEDICAL SOCIETIES.

The need of higher standards of medical education in the United States is universally conceded. Indeed the persistent efforts of many of our leading medical colleges and an earnest advocacy on the part of our prominent medical journals have rendered much valuable service in this direction. Some of our schools are now making such requirements as would remedy the evils of illiteracy were their standards to be generally accepted.

But it is idle to presume that the profession can be purged of incompetency while any medical school, if it shall so elect, may barter its diplomacy as merchandise, and be alone responsible for the proficiency of its graduates. If short terms of study are advertised, if low fees only are required, and if a surety of graduation may be anticipated, it will not be singular if such schools receive a liberal patronage, and the medical profession continue to suffer from the influx of such illiteracy.

While the great majority of our able physicians and the best of our medical colleges may most earnestly desire it otherwise, yet the fact remains that no appeal to reason—to honor—or to the interest of humanity will suffice to remedy the evil and compel a certain class of colleges to the needed reform. Only compulsory legislation will meet their cases and let us be thankful and take courage in the fact that legislation can do it.

It is not within the province of the general government to deal with this matter *but* it is competent for the several States so to do.

This vested right is not only conceded, but already many of the States are acting in recognition of that right and in several of them the thoroughness of legislation leaves little more to be desired.

Medical legislation in the several States must of necessity be largely influenced by an intelligent expression on the part of the profession as to what the general good requires. It is due to the several legislative bodies that the needs of their State, so far as regards medical legislation, be clearly and wisely set forth. The leading medical men of a State more than any others are competent to indicate what such legislation should be.

The expressions of their judgments should be clear, concise and just, and coming to an intelligent body of legislators such an expression, from a united profession, will largely influence its action.

In the attainment of such results it is essential that the entire local societies of the several States be ably represented in their State organizations. It is here that any conflicting views may be reconciled. It is here that the influence of the medical men of a State may be best harmonized and unified. It is in our State Medical Societies that the appropriate measures can be devised by which to secure needed legislation, and it is through the agency of its members located in the various sections of each State, that the individual members of the State Legislatures can be reached and their favorable action be secured. If, then, the future advancement of medicine in America shall be dependent in large measure upon State legislation, and if the several legislative bodies are to be successfully influenced by concerted action on the part of the medical profession, and if that concerted action can be secured through the harmonious working of State Medical Societies, does it not follow that with them more than with any other medical organizations rests the responsibility of securing to our country that immunity from ignorance, charlatanism and quackery to which as free and intelligent people they are entitled. Recognizing the failures of simple persuasion in the past, let us address ourselves to the only efficient remedy—that of appropriate State legislation.

EDITORIAL NOTES.

HOME.

THE NEW YORK SYSTEM OF CORONERS.—The New York Society of Medical Jurisprudence has had under discussion the abuses of the system of coroners and a committee has been empowered to draft a law which, if enacted by the next session of the Legislature, will abolish that antiquated system. In its place, the Society desires to see inaugurated a system of medical examiners resembling that which has succeeded so admirably in the State of Massachusetts. It is stated as an actuality that during a recent inquest, the Coroner asked a witness if the *rigor mortis* was a sure sign of death, and again, if there was any way of determining if a post-mortem had been

performed before death. The fierce light that beats upon the office of coroner has of late revealed so little that is creditable to it, that it cannot long perpetuate itself in an intelligent and observant community. The present Board of Coroners find the proposed legislation highly objectionable and retort upon the society, above named, that its real object is to manufacture new officers for some of its medical associates.

MEMORIAL TO THE LATE DR. CABELL.—A memorial window is to be erected in the new chapel at the University of Virginia in memory of the late Dr. James L. Cabell.

IT is stated that another Woman's Medical College is to be started in Cincinnati.

THE WIDOW OF THE LATE DR. C. R. AGNEW has been appointed by Mayor Grant a member of the Board of Education of New York.

PHILADELPHIA MEDICO-LEGAL SOCIETY.—At a recent meeting of this Society the following were elected officers: President, Dr. W. F. Waugh; First Vice-President, Dr. Martin; Second Vice-President, Dr. W. Buckby; Recording Secretary, Dr. Horace K. Reeger; Corresponding Secretary, Dr. T. H. McBride; Treasurer, Dr. G. M. D. Peltz; Board of Censors, Drs. Connor, Hazel and Stewart; Librarian, Dr. Nash.

A PHYSICIAN TAKEN WITH PARALYSIS WHILE ACTING AS CHAIRMAN.—Dr. J. P. Bancroft of Concord, N. H., was the presiding officer at a meeting of the New England Psychological Society, when he noticed a gradual loss of power creeping over his left side. He had the fortitude to remain in the discharge of his duties and put the motion to adjourn, although his fellow members were, at that very moment, assisting in maintaining his erect posture *The Boston Medical and Surgical Journal* takes pleasure in reporting that Dr. Bancroft has not been seriously paralyzed, but has manifestly improved in muscular power since the time of the attack.

FOREIGN.

MEDICAL PROGRESS IN CHINA.—The Chinese government has determined to form medical bureaux for the army and navy, upon Occidental models; requests for information from the United States departments have been made in regard to hospital organization and ambulance service. A foreigner will be made Surgeon-General, with an adequate staff of assistants who have been trained in the schools of the civilized world. A beginning will be made in northern China, by the building up of a medical college and several hospitals and dispensaries at a number of the military stations in that part of the kingdom. Native surgeons will be appointed to the fleet, chiefly from among young men who have been educated in this country, under the auspices of the Chinese Educational Mission. The importance of this step, in the way of medical reform, is very great, since it gives the stamp of official recognition, in departments of highest influence, to the modern systems of military and naval service, and sends into retirement the effete methods that have hitherto been honored.

THE SOCIETY OF MUTUAL AUTOPSY AT PARIS had for one of its members the late General Faidherbe. His will explicitly bequeathed his body, and especially his brain and skull, to the Laboratory of Anthropology to be utilized for the benefit of science. The carrying out of this behest has been opposed by the General's widow and heirs, on the ground that the "ravages of disease have rendered an examination undesirable," and it will probably be frustrated. Among the early members of this Society who have been true to their post-mortem obligations, were Dr. Paul Broca and Gambetta. When Gambetta's brain was dissected it showed a marked development of Broca's convolution, and since he was one of the most fluent men in his generation, he was thought to have furnished a happy confirmation of Broca's theory.

THE INTERNATIONAL MEDICAL CONGRESS OF 1890.—The Budget of the German Imperial Home Office allots 80,000 marks as a contribution to the expenses of the Tenth International Medical Congress, which is to meet in Berlin next year, and assigns the following reasons: "The considerable expenses which these congresses entail are, as is proved by experience, only partly covered by the contributions of the members, so that, on former occasions, especially at the last congresses in Copenhagen and Washington, considerable subsidies were granted by the respective governments from public funds for the defrayal of the expenses. It will not be possible for the empire to lag behind other States in this respect."

TOPICS OF THE WEEK.

A VOICE ON MEDICAL EDUCATION FROM CALIFORNIA.

It is well known that the medical schools of California have exacted a preliminary examination of their students, and three years of college study. But it is also true that the State Board of Examiners have recognized the diplomas from medical schools elsewhere that made no such requirements. At this late day this Board has determined that on and after April 1, 1891, it will refuse to recognise the diplomas from all medical colleges that do not exact from their students three years of college study. This is well, but the requisition of the same years ago, would have been still better.

The California medical colleges require a preliminary examination, why does not the State Board exact such an examination of the medical colleges whose diplomas it recognizes? The claim of the *Pacific Med. Journal* that this Board should exact from the colleges whose diplomas it recognizes at least as high a grade of preparation as that demanded by the California medical colleges, seems to us perfectly reasonable. We hope that it will continue to press the matter until the Board has done its duty to the colleges of its own State, and the medical profession everywhere. It is difficult to understand why this Board has not already done this scant justice to the cause of medical education. If there is any lack of doctors for the needs of the people of California, the colleges have adequate machinery to supply the demand.

Generally the medical colleges resist the line of progress, but in this State it seems that the colleges are ahead of the State Licensing Board.

Many are the discouragements of those who seek the uplifting of the medical profession to a higher grade of scholarship, general and special, but it would seem that no State Board should stand in the way of such advancement. In the case of the California Board we read the indication, from its requirement of three college years after next year, that in the near future it will still farther advance in the matter of preliminary education.

We venture to make a suggestion respecting the preliminary examination, viz.: that it shall require as evidence that any college has exacted a proper preliminary examination in any given case, a diploma of the degree of A. B., or a certificate signed by the President and Secretary of a standard literary college, showing that the holder of said certificate has actually passed the examination requsite for admission into the Freshman class of said college. This is an entirely feasible requirement, and would give confidence in the actual preliminary training of the applicants for admission to the medical colleges. The time has come to insist that all the applicants for entrance into the professions must pass first through the literary or scientific colleges. It should be the business of the professional schools to compel those desirous of admission to their doors, to show that they already possessed the proper training for the intelligent and profitable pursuit of the studies there taught.

There are indications that the time when this may be realized is approaching. But the friends of this progress must not slack in their efforts to fulfil the conditions necessary to this end. California listens to the voice from Minnesota, Minnesota responds to the cry in Virginia, Virginia shows that she heard the speech from North Carolina, North Carolina proved that she had heard the voice from Illinois, from all these States Montana drew the inspiration that induced it to organize for the uplifting of the medical profession. These one by one listened to the individual and collective efforts by many earnest teachers of the better way echoing through the corridors of the past century. The conflict is between ignorance, greed, selfishness, vanity, and boodle on the one hand, and intelligence, unselfishness, manly integrity, and professional spirit on the other. The issue at the last none can doubt, but the speedy realization of this issue depends upon the vigorous and self-denying efforts of its advocates.—Correspondence, *American Lancet*.

PROFESSOR NUSSBAUM ON RECOVERY AFTER WOUNDS AND OPERATIONS.

PROFESSOR NUSSBAUM has found that a very good prognosis of the healing of surgical wounds can be obtained by examining the secretion from the surface during the first two or three days. If this be sanguinolent, prognosis is more or less bad. Care must be taken not to confound any slight after-bleeding with true sanguinolent secretion. The prognosis is only bad where the secretion from the whole surface of the wound is tinged with blood. Thus, when a day after a litholapaxy has been performed the urine is quite free from a reddish tinge the prognosis is good, or if two or three days after the amputation of a breast when the dressing is changed there is no general sanguinolent stain on the latter, but only, may be, a few little blood clots here and there, it is most likely that the wound will heal satisfactorily. Again, if the secretion becomes free from blood on the fourth or fifth day, the prognosis, though not quite so satisfactory as if there had been none at all after a few hours, is still decidedly better than if it continues bloody up till the sixth or eighth day. In such a case the patient is sure, if he recovers at all, to be very slow about it. In phthisical persons and hard drinkers there is nearly always a great tendency to a prolonged secretion of sanguinolent matter after wounds, and sometimes the tinge remains throughout the healing process, which is in these cases very tedious. When the secretion on the first day is free from blood, it shows that the capillaries are closed, and therefore that the intracapillary pressure is normal. Again, it is evident that when the intracapillary pressure is low the endosmose and the exosmose between the vessels and the tissues cannot be taking place properly, and thus that the due healing of the wound cannot be expected to proceed as it ought.—*The Lancet*.

MEDICINE AND THE ARTS.

Every now and again comes a cheerful reminder that the pursuit of medicine does not destroy artistic perceptions, even though it is currently held that devotion to any science tends to develop the "scientific frame of mind" until it is all-absorbing. Those who have had no

scientific training never seem to weary in denouncing the avidity for facts and the scepticism for theories with which they credit those whose habit of thought differs in many respects from their own. The medical profession in particular is selected for cheap satire. The interest of the dissecting-room and physiological laboratory and the watchful anxiety bestowed upon hospital patients are alike misunderstood by many who have never penetrated the inner life of a medical man. To those who know, however, there is a deal of human nature in the medical profession, and it seeks expression and distraction in many unsuspected directions. Painters, etchers and photographers abound in our ranks, while music not only claims many instrumentalists, but even the publication devoted to Wagner and all things Wagnerian is edited by a member of our profession. In such meditations upon harmony does Mr. W. Ashton Ellis find repose in the midst of the turmoil of conflict on behalf of the Members of the Royal College of Surgeons in their endeavor to obtain a restitution of their corporate rights. The current number of the *Meister*, with its article upon the Bayreuth Hush, seems pervaded by a sense of peace in striking contrast to the correspondence so ably conducted at the beginning of the year.—*The Lancet.*

PASTEURISM IN BRAZIL.

Statistics recently published by our Brazilian contemporary, the *Revista Medica de S. Paulo*, state that the first antirabic inoculation carried out in Brazil was performed at Rio de Janeiro on February 9, 1888. Between that date and August 14, 1889, 342 persons had presented themselves at the institute. Of these, 135 had been bitten by dogs quite free from disease, 14 had not been bitten at all, and 37 did not put in an appearance after the first visit. From the remaining 156 who underwent the treatment the director of the institute, Senor Ferreira dos Santos, eliminates 6 more, namely, 5 who, having been slightly bitten by dogs as to which there were not strong grounds of suspicion, did not complete the course, and one who, having been severely bitten on the head, died of hydrophobia during treatment. In this last case, however, the patient had failed to attend ten times in twenty-three days. Three children who were badly bitten by the same dog are still quite well, more than a year having now elapsed from the date of the injury. In 141 cases the bites were inflicted by dogs, in 15 by cats. The condition of the animal was ascertained in 19 cases by positive results following inoculation of its medulla, or by the disease declaring itself in animals bitten at the same time; in 67 by the animal showing unequivocal signs of the disease, and in 70 by its exhibiting "very suspicious" symptoms. Of the 150 cases in which the treatment was thoroughly carried out only one died—a mortality of 0.66 per cent.

THE TALE OF EYAM: A STORY OF THE PLAGUE IN DERBYSHIRE.

The village of Eyam in Derbyshire was desolated by the plague in 1666. For twelve months, from September, 1665, to the autumn of 1666, the ravages of the awful pest were so terrible that only one-sixth of the inhabitants were left to tell the story. The villagers solemnly agreed, at the time of "the visitation," that on no account would they pass beyond a boundary line drawn around the village. Food was brought to several points by those outside and placed upon the ground. In the middle of a field at the back of the village are seven stones to the memory of seven members of one family carried off on seven successive days. The author of the poem which tells the story of the pest says:

> Long may these stones be left, and proof to all
> Of how our brave men died in that past age.

The picture of utter helplessness in presence of such a calamity is painted by the author in vivid colors. In that age, under such terrible circumstances, a brave man had but to stand still and die; he knew nothing of the origin or the nature of his enemy. How could he fight "the foul and unsurpassed pestilence," of which he knew nothing but that its dart was certainly fatal? Let those who say that medicine has not kept pace with other branches of science read this piteous tale and compare our attitude now in presence of dire disease with that of the poor folk at Eyam, who built a wall round the spot on which they had but helplessly to perish. The author speaks of the pestilence and "its hellborn brood," and again of firebolts from "heaven's reeking nostrils." Such poetic phraseology aptly exemplifies the mental attitude of men who lived in the infancy of modern science, when in the plague (*plaga*—a blow) they saw the angry stroke of offended Deity, and recognized the "scourge" of God in what we know to be only the scourge of filth.—Review, *Brit. Med. Journ.*

NEW ITALIAN REVIEW ON HYGIENE.

A further indication of the progress which is being made in matters relating to public health and sanitary science in the kingdom of Italy is afforded by the promise of the issue next month of the first number of a Review on Hygiene, which will be compiled under the direction of Dr. Eugenio Fazio. The subjects to be dealt with are as follows: Biology, bacteriology, infection and sanitary police, the natural sciences as applied to public health, demography, statistics and sanitary engineering. We are glad to find that the Review will emanate from Naples, for the southern portion of the Italian peninsula stands, we fear, much in need of an educational movement in the direction of hygiene. For this reason, too, the Review has our good wishes.

POST-GRADUATE COURSES IN VIENNA.

The number of American and English physicians attending courses in Vienna has again increased this year. Over eighty fresh students arrived here last month from America and England. More than sixty courses on various branches of medicine are conducted here during the whole session. They last from four to six weeks. The courses on Laryngoscopy, Ear Diseases and Gynecology are especially well attended. It is hoped that the proposed Anglo-American Medical Association will soon be formed, as its by-laws will be approved by the Austrian Government within the next few days. Students can easily obtain information here as to the courses, a list of which is published every week by the *Vienna Weekly News*, and is posted on boards, etc., at the Medical Inquiry Office, IX, Maximiliansplatz, 13, and at the English Library, I, Landesgerichtsstrasse, 12.

PRACTICAL NOTES.

DISINFECTION IN CONTAGIOUS DISEASES AND EPIDEMICS.

The Council of Public Hygiene and Health of the Rhone has issued the following instructions relative to disinfection:

1. PRECAUTIONS TO BE TAKEN BY THE ATTENDANTS UPON THE SICK.

Persons caring for the sick shall be provided with garments which must be changed, 1st. When leaving the house; 2nd. During meals; 3rd. When the attendants are obliged to come in contact with healthy persons in the house.

They must wash their hands frequently, especially before meals, with soap and large quantities of water, renewed several times.

2. DISINFECTION OF UTENSILS USED BY THE SICK.

Cups, bowls, plates, spoons, etc. used by the sick, must be carefully cleaned with boiling water and they must not be used by other persons.

The remains of food left by the sick must not be eaten by healthy persons.

3. DISINFECTION OF EXCREMENTITIOUS MATTERS, ETC.

Vomited matters and the dejecta must be immediately mixed with a glassful of an acidulated solution of sulphate of copper, (water 100 grm., sulphate of copper 2 grm., ordinary sulphuric acid 4 grm.) and then thrown into the water closet. The vessels which are used to receive these matters must be first rinsed and then immediately treated with first, another glassful of the acidulated solution of sulphate of copper and then with a large quantity of ordinary water.

In the country these matters must be buried, after disinfection, far from all water supplies for domestic uses.

If matters have been spread upon the floor they must be absorbed by sawdust, which must be immediately burned. The remainder must then be removed by a sponge or clout impregnated with carbolic acid, to be disposed of as hereinafter discribed.

If bedding, napkins or handkerchiefs have been soiled these articles must be immersed in a solution of carbolic acid, and treated as will presently be described.

4. DISINFECTION OF LINEN DURING THE COURSE OF THE DISEASE.

Body linen, napkins, handkerchiefs and bedding must be disinfected in the house before being sent to the laundry. For this purpose whether soiled or not, when changed they must first be immersed for half a day at least in a tub filled with a two per-cent carbolic solution, they must then be lightly wrung out and placed in boiling water for twenty minutes or half an hour they must then be put in the wash or sent to the laundry.

It is very important to remember that all discharges from the patient must not be permitted to dry upon the linen.

Treatment by the disinfecting oven is preferable to boiling when this is possible.

The carbolic acid solution thus employed must be turned into the water closet, and not into the sinks.

Linen and dressings of little value must be burned; otherwise they must be disinfected in the same manner as body linen.

5. DISINFECTING OF CLOTHING, BEDDING, CARPETS AND HANGINGS AT THE END OF THE DISEASE.

The clothing of the sick, the bedding, (coverings, mattress, pillows,) and the carpet and curtains of the sick room must be enveloped in cloths moistened with water or a carbolized solution and then be conveyed to a disinfecting oven where they are subjected for twenty minutes to the action of steam without pressure.

These articles must not be returned to their places until the room has been disinfected.

Wearing apparel must also be treated in this manner even if is to be given away or sold.

6. DISINFECTION OF THE FURNITURE FOR THE SICK ROOM.

This procedure includes several steps which must always be taken in the following order:

1. Moisten the floor uniformly with water.

2. Carefully wipe the ceiling, the walls or the hangings with a cloth slightly dampened so as to remove the dust.

3. Furniture of small value, such as common chairs, etc., must be liberally treated with a sublimate solution (1–1000).

The inside of night chairs should always be so treated.

4. In the more important furniture such as beds and hair mattresses all the joints and crevices must be treated with the solution of sublimate as in the destruction of vermin; waxed and varnished surfaces must be wiped with a cloth impregnated with oil.

5. Upholstered chairs must be beaten and then rubbed with a brush dipped in the sublimate solution.

6. The floor of the chamber and the wainscoting and walls up to a height of 6 feet must be washed and cleaned with brushes and sponges dipped in the sublimate solution.

7. Not later than two hours afterwards a second liberal washing must be given with sponges dipped this time in an alkaline solution (water 100 grm., carbonate or crystals of commercial soda 10 grm).

At the same time the less valuable furniture

which has previously been treated with the sublimate solution must now be well washed with the alkaline solution.

8. The excess of the solution must be mopped up, the room well ventilated so as to dry the walls and floor as quickly as possible.

The preceding measures ought to insure sufficient security.

In case, however, the rooms to be disinfected can be dispensed with for 48 hours it is well to complete the disinfection by fumigation with sulphurous acid.

For this purpose before drying the room an iron vessel is placed in the middle of the floor; into this is placed flowers of sulphur in the proportion of 15 to 20 grm. per cubic metre of the space to be disinfected. To avoid danger of fire the vessel containing the sulphur should be placed in a large receptacle containing 5 or 6 centimetres of water. The chimney is then stopped and strips of paper are pasted over all cracks where the vapor might escape. Metallic objects which can not be removed are covered with grease. Alcohol is then poured upon the sulphur and ignited. The door of the apartment is then closed and the crevices covered with strips of paper. Sulphurous acid gas is evolved and should be confined for 12 hours at least. The next day the room is well aired. It may be reoccupied as soon as the gas which generally provokes irritation of the eyes and throat is no longer noticed—this will generally be in about 24 hours after the windows have been opened.

Finally when possible it will be advisable to repaper or repaint the walls as the case may be. —*La Prov. Méd.*

SOCIETY PROCEEDINGS.

New York Academy of Medicine.

Meeting of the Section of Obstetrics and Gynecology, November 27, 1889.

This meeting was devoted to a discussion of the use of electricity in gynecological practice.

DR. A. D. ROCKWELL opened the discussion with a paper on

GENERAL OBSERVATIONS ON THE USE OF ELECTRICITY IN GYNECOLOGY,

which consisted of a comprehensive survey of the whole field, with special reference to the rationale of the effects of electrical treatment. In speaking of the faradic current he said that its action on the muscular fibre of the uterus was analogous to that of ergot, although manifestly more prompt and energetic, especially under the influence of the positive pole. By this action a veritable interstitial massage was obtained, and it was potent in overcoming the primary inertia of the uterus and in preventing an arrest of retrograde metamorphosis, through which comes subinvolution and its inevitable and persistent sequelæ. When the processes that went to make up the graver and more chronic diseases of the uterine parenchyma and its lining membrane has continued a long time, he said, the galvano-chemical cauterizing effects of the galvanic current are called for in the treatment. By the interpolar influence of the current we correct a languid nutrition and hasten the absorption of exudation. The positive pole has an action peculiar to itself, which is directly hæmostatic, and it is therefore indicated in all hæmorrhagic conditions, as well as when there exists an excess of the natural secretion. On the other hand, the absorption process is undoubtedly more active under the influence of the negative pole, and is especially indicated in indurated chronic metritis and for the resolution of fibroids. That the galvanic current often completely dissipates fibroid tumors of the uterus few would affirm, but the symptoms can be relieved, to a greater or less extent, by electrolysis, and sometimes so completely as to lead to the belief, so far as the patient is concerned, that the tumor has entirely disappeared.

Dr. Rockwell is a believer in the great utility of the galvanic current in the absorption of the thickenings and infiltrations resulting from inflammation of the pelvic cellular tissue, and in dissipating uterine and ovarian pain. He related a case in which the patient had suffered intensely from dysmenorrhœa for six or seven years, and had finally submitted to extirpation of the ovaries for its relief. The flow had gradually diminished, but the pains had only increased in severity after the operation. Under internal applications of the galvanic current, however, the paroxysms yielded rapidly, and in a few months recovery was complete.

Next came papers on *The Treatment of Certain Pelvic Tumors by Galvano-Puncture and Drainage by the Vagina and Intra-Uterine Galvanization*, and on *The Galvanic Treatment of Uterine Fibromata*, by DR. A. A. GOELET and DR. E. L. H. MCGINNIS. Both these gentlemen have visited Apostoli in Paris and carefully studied his methods. One of the most interesting portions of Dr. Goelet's paper was that in which he spoke of the electrical treatment of hydrosalpinx and pyosalpinx. In hydrosalpinx he uses the negative pole through a canula, with not more than 50 milliampères for five minutes at a time. In pyosalpinx the cavity should be washed out with an antiseptic solution and the positive pole be employed, as being less irritating, and because it is believed to be more antiseptic. He stated that the cauterization of the track of the puncture by the current shut it off from the surrounding tissues and rendered the absorption of septic material through that channel impossible; and if a dressing of iodo-

form gauze were kept constantly renewed in the vagina there was nothing to be apprehended from that source. Resolution in the diseased tube was promoted by the influence of the current, and was still further favored subsequently by mild positive galvanization of the endometrium. He limits this treatment by aspiration to such tubes as are close to the vaginal wall, and when fluctuation may be distinctly felt. This treatment was suggested to Dr. Goelet by observation of three cases of radical cure of hydrocele accomplished by the method. He has also successfully treated in the same way small cysts close to the vaginal wall, though fibro-cysts are sometimes more obstinate in yielding. A considerable portion of the paper was naturally devoted to the treatment of fibroids, and near its conclusion he quoted the following opinion of Thomas Keith in regard to electrical treatment and hysterectomy: "Apostoli's method, though slow and requiring much patience, tenderness of manipulation and thought, is still sure in its results. . . . . Hysterectomy, which is performed every day for a complaint that rarely of itself shortens life, kills every fourth or fifth woman that is subjected to it. This mortality must cease. It is not a question of surgery; it is a question of humanity. Every time that any disease can be cured without resorting to a bloody and dangerous operation, such as hysterectomy, progress is made in our art and there is gain to humanity, while surgery is the better for being purged of a deadly operation."

Dr. A. H. Buckmaster, of Brooklyn, read some

NOTES ON THE TREATMENT OF FIBROMATA BY ELECTRICITY.

He gave an account of a series of original experiments made for the purpose of testing the direct effect of electricity on various tissues. He used the exposed heart of a living dog for the passing of the current, as presenting a tissue as nearly analogous as possible to myo-fibroma.

Dr. A. Lapthorn Smith, of Montreal, read a paper on

BIPOLAR FARADIZATION IN GYNECOLOGY,

in which he spoke highly of the use of the coarse wire coil in post-partum hæmorrhage, in subinvolution due to the defective contraction of the uterus, in deformity and displacement of the uterus due to relaxation of its own walls or of the muscles which hold it in the center of the pelvis, etc. He mentioned the following as advantages of the bipolar method: 1. It is less painful than the old method. 2. It is easier to apply. 3. It allows a much stronger current to be tolerated. 4. It is, consequently, more effective, because the higher the intensity of the dose, the more marked the effects.

There are three kinds of cases in which Dr. Smith has found the fine wire bipolar faradization remarkably beneficial, viz: 1. Ovarian pain where no organic disease can be found. 2. Abdominal pain due to hysteria. 3. In women about the age of 30, who, though fleshy and apparently well supplied with blood, do not menstruate at all, or only very slightly, and are apt to become hypochondriacs. 4. In vaginismus, which he considers to be due to hyperæsthesia of the nerve terminals about the entrance of the vagina, and is really a form of vaginismus.

Dr. P. F. Mundé, in the discussion which followed, said he could speak most decidedly in favor of electricity in gynecology, and that he had seen more benefit derived from galvanism than faradism. He had also found that mild currents employed for a long time were, as a rule, more efficacious than strong currents used for a short time. He did not regard the milliampère metre as of much practical value. When using galvanism for the relief of pain he thought the sensations of the patient were a sufficient guide as to the strength of the current employed. When, however, the current was used in patients under an anæsthetic or for the galvano-puncture, he considered the metre necessary.

He said that he had employed electricity once with success in extra-uterine pregnancy, but as the shock was so severe as nearly to kill the patient, he was at present somewhat undecided as to whether this was the best plan of treatment or not. In pyosalpinx and pelvic abscess laparotomy and drainage are, in his opinion, certainly preferable to galvano-puncture. Out of 123 cases of uterine fibroids coming under his observation only eight seemed to him to require Apostoli's method, while four others called for galvano-puncture through the vagina. The latter appeared to him to be the ideal treatment for the cure of this class of tumors, and in all four of the cases in which he resorted to it the growth entirely disappeared and the patients were absolutely cured. In regard to Apostoli's method, with intra-uterine galvanism and the clay electrode on the abdomen; while it was unquestionably true that it relieved pain and checked hæmorrhage and that patients generally felt better for its use, in not a single one of the eight in which he had employed it had the tumor been much reduced in size.

Dr. Franklin H. Martin, of Chicago, exhibited an admirable

NEW PORTABLE BATTERY,

which he said was the outcome of a series of experiments made with the end in view of bringing forth a small portable battery which would possess none of the objectionable features of the ordinary form, and at the same time do the same amount of work as that required of the office stationary battery. The cell is a form of the chloride of silver cell, of sufficient power to give

an electro-motive force of 1 volt, and an ampèrage of $\frac{1}{10}$ ampère; so that a battery of 50 cells will do the same amount of work that 36 to 40 Leclanché cells will accomplish. Next to treatment of uterine fibroids by galvanism, he said he had found the greatest satisfaction in treating inflammatory exudates of the pelvis, the best results being obtained in these cases from comparatively strong doses, of from 75 to 125 milliampères. His experience in the treatment of uterine fibroids by electricity amounted in round numbers to 200 cases. Of this number not more than five failed to continue the treatment until results could be estimated, and of the remainder, but three had failed to obtain relief, and there were no deaths. His methods, except in unimportant minor details, were derived directly from Apostoli.

DR. G. BETTON MASSEY spoke particularly of the good effects of electricity in chronic inflammation of the uterus and of the endometrium. Having referred to several cases in illustration, he remarked that in simple endometritis or uterine catarrh, galvanic currents locally applied are practically infallible; so that he has never seen a case resist them. Out of twenty-six cases of fibroid tumor in which he had employed electrical treatment, two were cured anatomically and symptomatically, seven were cured symptomatically and anatomically reduced, eleven were greatly improved, four were slightly improved, one remained unchanged, and one died. He said he could not agree with Dr. Mundé in regard to the milliampère metre. In regard to the use of electricity in pyosalpinx, he had met with one instance in which the treatment for endometritis to which he had referred had excited a flow of pus.

A communication received from Dr. A. J. C. Skene, of Brooklyn, was then read, in the course of which he said that he had observed that those who had avoided the extremes of praise and condemnation in reference to the electrical treatment of fibromata were gaining in numbers and adding valuable notes to their clinical records. The strongest opponents, he believed, were those who knew least about electro-physics and the therapeutic use of electricity. Perhaps the most important question in the whole discussion, he said, was the relative merits of this and other methods of treatment. The claims of hysterectomy and the removal of the ovaries in cases of fibromata had been urged with great vigor by those strongly addicted to surgery; and by a curious use of the facts, it had been made to appear that surgical treatment had advantages, when such was not really the case. He had hoped to get the records to show that more cases have died from removal of the uterus and ovaries for the cure of fibromata than have died from these growths without treatment of any kind. If such were the facts—and he believed that the records of New York and Brooklyn would show that they were true—surely surgery did not compare so favorably with electro-therapeutics

DR. H. J. BOLDT thought that while electricity would not in every instance even alleviate the symptoms, we ought not to perform a radical surgical operation in any case until this had been given a thorough test. As regards pyosalpinx, however, he believed that the patient was cured when the tubes had been cut out by laparotomy, and not till then.

DR. GORLET then said that he had cured at least thirteen cases by galvano-puncture which could not have been otherwise relieved except by laparotomy. That is to say, the patients would otherwise have been mutilated. He thought it only right to try and cure these patients before mutilating them, and he had found that by emptying the tubes and the subsequent use of the current the tubes might be rendered patent. The resolution of the proximal end of the tube, he said, could be secured by galvanism of the endometrium, and he was very glad to learn that in this particular his experience had been confirmed by Dr. Massey in the case which he had related. He did not think that we ought to say that the removal of the tubes was a cure of pyosalpinx. It was a mutilation, and not a cure, and in many cases, indeed, the patient's condition was more embarrassing after the operation than before. He went on to say that many of the failures with electricity which Dr. Mundé stated he had met with were to be attributed to the fact of his having used his currents too weak.

Medical Society of the District of Columbia.

Stated Meeting, June 5, 1889.

DR. CHARLES E. HAGNER, PRESIDENT, IN THE CHAIR.

DR. J. M. TONER entertained the Society with a description of the topography of Johnstown, showing that escape was impossible during the recent flood. Several of his relatives and his two instructors in medicine had been lost.

DR. D. W. PRENTISS presented *Casts of the Feet from a Scarlet Fever Patient.*

DR. HENDERSON read a paper on

CEREBRO-SPINAL MENINGITIS COMPLICATING PREGNANCY.

I was called Friday, March 29, 1889, to see Mrs. E., white, æt. 22 years, married, and found she had been sick for several days. She was seven months advanced in her second pregnancy. On the previous Tuesday she had fatigued herself very much by scrubbing up her room, and had suffered with pain in her head all that afternoon and the next day. On Thursday she had a violent chill, followed by fever, and on Friday, the

day I was called to see her, she had another chill. Her condition when I saw her on Friday afternoon was as follows: She was unable to retain anything on her stomach and was vomiting almost constantly a bitter greenish fluid. Her temperature at the time of my visit was 103°, her pulse 120, and she complained greatly of pain in her head and back. Supposing I had a case of remittent fever to deal with, I ordered a powder of ¼ gr. of calomel every two hours, as she had constipated bowels, and gave her a suppository of 5 grs. of quinine every four hours. On visiting her the next morning I found that the vomiting still continued and that her bowels had not moved. She now complained very much of pain in her head and in the back of her neck and said she could not stand it any longer. I gave her a hypodermatic injection of ¼ gr. of morphia, and no relief following I repeated the injection in half an hour. I ordered large enemata of soap and water to open the bowels, and said I would see her again in the evening. When I called I found that her bowels had been freely moved by the enemata and the vomiting had ceased, but she had had no sleep and still complained of pain in her head and neck, and also of an inability to move her head, which was now thrown backwards. Her temperature was at this time 104° and her pulse 130. I then recognized the true nature of the disease I had to contend with. The calomel powders and the suppositories of quinine were discontinued and she was ordered bromide of potash and chloral every two hours, and cold applications were applied to her head. When I visited her Sunday morning I found her much worse. Her temperature was 106°, pulse 140, and her delirium, which had been only occasional previous to this date, was now constant, and it was very difficult to get her to take either medicine or nourishment, as she experienced great difficulty in swallowing. Her body as well as her head (which was stiff from the rigidity of the muscles), was bent backwards to a marked degree. Her mouth and nose were covered with a herpetic eruption, and her eyes were suffused and inflamed. The movements of the fœtus could be distinctly felt, and the advisability of inducing premature labor was considered. I ordered 5 grains of antipyrin every two hours until perspiration was noticeable. After taking one of the antipyrin capsules she went to sleep, and in a few minutes was seized with what her attendants called a convulsion, and I was hastily summoned. I found her in a state of wild delirium, and her head was constantly moving from side to side. Her delirium assumed a stronge phase. She was incessantly counting from one to one hundred, and then back again to one, and the same thing over and over again. The convulsion, if she had one, had passed off. Her breathing was rapid and her temperature was still 106°. The family having requested a consultation, Dr. J. F. R. Appleby was called in to the case. He agreed with me as to the nature of the disease after having satisfied himself it was not a case of uræmic poisoning, by drawing off the urine and examining it with the heat test, and finding no albumen present.

At the suggestion of Dr. Appleby a large enema of a quart of ice water was used with the hope of reducing the temperature. After the first enema her temperature was taken and found to be 104° Another was now used with the result of the temperature falling to 102°. She then seemed to be more quiet and appeared more intelligent, and the bromide and chloral were continued with the result of her having several hours sleep. For the next few days her condition remained nearly the same, except that her temperature did not rise above 103°. It was almost impossible to give her food or medicine by the mouth because of her difficulty in swallowing, so nourishment consisted of whiskey and milk and of beef tea was given her, enemata, and the medicine in small and often repeated doses by the mouth. A large blister was applied to the back of her head and neck. On Wednesday she was unconscious but at times seemed to have rational moments, and it was then noticed that she had contractions of the uterus, and making an examination I found she was in labor, and that afternoon she was delivered of a seven months' fœtus which was living.

The mother was entirely unconscious of its birth and remained so afterwards. Her pulse continued to grow more rapid and feeble, purpuric spots appeared on her limbs, and three days after the birth of the child, and on the tenth day of her illness she sank into a state of coma and died. The baby lived for ten days and then died from congenital debility. It would be an interesting subject to find out if possible the cause of this unusual disease in this patient. She was of a nervous disposition and had always suffered with insomnia and was very delicate Her surroundings were very unhygienic, and her room had an odor about it like that of a cellar, and was very damp. I mention this as a possible predisposing cause. No post mortem was allowed, so I am unable to report the pathological conditions that would have been found.

DR. GEO. L. MAGRUDER reported two cases:

1. A Turkey Quill Removed from the Urethra of a Boy.

2. A Hair-pin Removed from the Bladder of a Girl.

DR. THOMAS N. MCLAUGHLIN read a paper on

THE THERAPEUTIC EFFECT OF SULPHIDE OF ARSENIC IN DISEASES OF THE SKIN.

This paper is a preliminary report of some investigations which I have been conducting for the purpose of ascertaining the therapeutic effects

of sulphide of arsenic. My attention was attracted to this drug some time ago, and as I desired to obtain a preparation of arsenic which would be better tolerated by some of my cases, I was induced to give this preparation a trial. The sulphide of arsenic is used principally in the manufacture of fire-works, and for medicinal purposes has been seldom employed. The results which I have thus far obtained fully warrant me in calling your attention to the good effect which has followed the use of this drug.

Hurtz informs us that (Realgar) arsenic disulphide, As^2S^2, occurs in nature in the form of transparent red crystals, which belong to the type of the oblique rhombic prism. It is obtained as a red mass having a choncoidal fracture by melting 75 parts of arsenic with 32 parts of sulphur. It is fusible and may be crystalized by slow cooling. When strongly heated in closed vessels it boils and distils without alteration, but when heated in the air it burns into arsenious and sulphurous oxide. Three compounds of sulphur and arsenic are known: Arsenic disulphide, As^2S^2, or Realgar; arsenic trisulphide, or orpiment, As^2S^3; and arsenic pentasulphide, As^2S^5. It is to the first of these preparations that I shall call your attention. . . . .

Since I was unable to obtain any but the crude drug in this city I ordered from Schieffelin & Co., of New York, 1,000 granules at a time, each containing $\frac{1}{10}$ gr., and prescribed them in the following cases:

The first case, one of psoriasis. This patient had been under the care of some of the most distinguished men in this country. The various preparations of arsenic usually prescribed in the treatment of such cases had all been employed at various times during the twenty years which this patient has suffered with this disease. He has always been compelled, after a very short time, to stop the arsenic on account of the irritation which it invariably produced. He has never been able, therefore, to continue any of the arsenical preparations on this account. Every form of treatment has been employed in this case. I placed this patient upon one granule three times a day, and after four days increased the number to two granules three times a day, and in this way the number has been increased until he is taking eight granules three times a day. When I began to employ this drug the patient suffered with an eruption over his arms, back, head and forehead, his hands were covered with fissures, which would bleed whenever the fingers were extended, the tissue upon palmar surfaces frightfully indurated, the nails black and roughened.

His hands have greatly improved, his nails have nearly assumed their natural appearance, the fissures have entirely healed, and the face at the present time is practically well. One month after prescribing these granules my supply was exhausted and the patient was compelled to do without them for one week, and during this period the eruption began to extend and the case lost nearly all the good effect which had been produced by the previous treatment. When he again began to use the granules the eruption, after a few days, began to show the effect of the treatment. The same local treatment has been continued all the time. This patient is in a better condition to-day than he has been at any time since the disease first appeared. There has not been the slightest irritation produced by this drug. His general health has improved, and he is now hopeful that he has obtained a remedy which may perhaps exert a controlling influence, if not a curative effect, in his case.

The second case of psoriasis had existed for six years. He has been treated by some noted specialists in this section of the country, and has not been benefited to any extent. This patient, a physician, is covered with an eruption from his head to his feet. He has never been able to take any of the arsenical preparations for a longer period than a week without serious gastric and intestinal irritation being produced. He has employed all forms of local treatment. When he called to see me he was disheartened, said that he had been trying the different forms of treatment during the past six years, and he had not observed the slightest improvement—the eruption appeared to be extending. I prescribed the granules as in the former case. He has not employed any local treatment to certain portions of the body, as I desired to see what the internal treatment alone would produce. He has been under treatment for eleven weeks, is at present taking eight granules three times a day, and the eruption is fading very rapidly. There has not been the slightest stomach or intestinal irritation. Large sections which were covered with the eruption are entirely clean, but show where the eruption has existed.

I have prescribed the granules in cases of acne and furuncles, where I have been in the habit of giving sulphide of calcium, and the results have been more satisfactory from the arsenic than from the latter.

In eczema I have also obtained satisfactory results. I have employed this drug in a large number of cases, and I have not in a single instance observed the slightest irritation or contra-indication to its use. These cases have all been of a very chronic character, and I have been careful to give it a severe and thorough test. I have found, during the short period which I have employed this drug, that the combined action of arsenic and sulphur, the latter proving one of the most serviceable drugs in the treatment of skin diseases, is far superior to the single action of either of these drugs.

The patient is entirely unaware that arsenic is

being administered, and this in itself is quite a consideration. The dose can also be conveniently increased or diminished, as the case requires, and finally entire absence of any irritation of the stomach or intestines thus far having been produced.

FOREIGN CORRESPONDENCE.

LETTER FROM PARIS.

(FROM OUR REGULAR CORRESPONDENT.)

The Water of the Seine as a Causative of Typhoid Fever in Paris—Prof. Verneuil on the Immediate and Remote Results of Operations practiced for Local Tuberculosis—Extirpation of the Larynx—Codeine to obtain Anæthesia—Dr. Ricord's Will.

It has often been asked whether the ravages made by typhoid fever among the Parisian population are not attributable to the water of the Seine which they are sometimes condemned to drink. In a report on this question, addressed to the Prefect of Police, the Council of Hygiene and of Public Salubrity pronounced its opinion in the affirmative. After having established that potable water is, in large cities the vehicle of typhoid fever, and that the distribution of water non-contaminated diminishes the number of cases of this malady in a proportion hardly credible. The reporter, Dr. Auguste Ollivier, arrived at this conclusion that as far as the water supply is concerned the sanitary condition of Paris is most unsatisfactory. He established that the mortality by typhoid fever rises or diminishes in a direct ratio with the consumption more or less great of the Seine water. In 1888, for example, the minimum number of cases of fever occurred in the month of March, it remained stationary in May and June. From the 9th of June, 300,000 persons drank the Seine water, the mortality rose from 50 to 81. From the 20th of June, the supply of the Seine water was stopped, and the mortality fell again, in August, to 52. In 1889 the distribution of the Seine water commenced on the 25th of May and it has continued. The number of deaths rose from 52 to 115. This proportion has been maintained, as the distribution of the Seine water was continued. There were 110 deaths in July, 117 in August, and 53 during the first half of September. To remedy this deplorable state of things, the Council of Hygiene demands that the supply of pure water should be considerably augmented, by the aquisition of new springs, recognizing, however, the numerous obstacles which are opposed to the realization of this measure. The reporter proposes as an expedient, in anticipation of water being brought to Paris from new springs, that a strict supervision of the drinking water collected in the reservoirs should be carried out, and care should be taken that this water should serve for nothing else than alimentation and should be suppressed for industrial purposes. In order to carry out this object, a double canalization should be established, with one cock much smaller than the other for spring water, while the second be reserved for the Seine water for washing purposes.

One of the most important questions brought before the recent Congress of Surgery had for its author Professor Verneuil, who treated of the immediate and remote results of operations practiced for local tuberculosis. Whilst acknowledging the immediate benefits of the operation, the eminent surgeon of the Pitié Hospital does not admit that it is always inoffensive. As to the remote results, Dr. Verneuil thinks that most frequently they are unfavorable. He remarked that one never meets in the hospital individuals that had been amputated since 10 years for a tuberculous lesion, when one is led to conclude that in ten years all the amputated tuberculous subjects are dead. The greater number of the members of the Congress were agreed in considering the operations as useful in tuberculous subjects as they are in other individuals, they did not think that they were more dangerous in the former and they expressed a doubt as to the influence of phthisis on evolution of wounds. They were, however, reserved as to the remote results of the operations.

The surgical treatment of peritonitis was considered a modern triumph, the subject gave rise to numerous important communications.

Dr. Cemons, of Bordeaux, presented to the members of the Congress a person on whom he had performed the operation of extirpation of the larynx, about 3 years ago, and who is none the worse for the operation. Since the operation, the man has resumed his occupation and breathes with the aid of a canula.

The employment of cocaine to obtain anæsthesia, or, better, local analgesia, had furnished Dr. Reclus the subject of practical considerations. He stated that notwithstanding his repeated communications he was sorry to find that cocaine had not entered into current practice; it was reproached as being inefficacious and dangerous. He had practiced upwards of 700 injections of cocaine with the view of producing analgesia, on which he made the following reflections: Intradermic injections alone are efficacious, cutaneous paintings have no effect, paintings of the mucous membranes alone may be utilized exceptionally for certain slight operations. Cocainized injections in hydrocele and old hydrarthrosis have given the best results. Interstitial injections alone have a veritable value in the operations on the integuments, but precaution should be taken to push the injection into the thickness of the skin, and not into the subcutaneous cellular tissue. If the soft parts, through which the needle

should pass, are very thick, it would be advisable to practice several superposed injections. In these conditions analgesia is always obtained, and these injections are not, as has been said, inefficacious in inflamed tissues. As regards the duration of the effect obtained by these interstitial injections thus practiced, the author has seen these effects continue for three-quarters of an hour and even one hour; he had effected radical cures without any pain. The bones do not seem to be susceptible of this calming action. In ano-rectal affections and in the painful operations that they necessitate the use of interior tampons imbibed in a 2 per cent. solution and a series of interstitial injections ensure a complete analgesia to such a degree that the dilatation of even the rectum becomes possible without pain. As to the dangers of which cocaine is accused, the author affirms that he had practiced 700 operations without any accident. Very complete bibliographical researches have revealed only four deaths, and in these cases considerable doses of cocaine were injected, namely, 75 centigrams, 1 gr. 20, 1 gr. 25, and 1 gr. 25. Below 75 centigrams there have never been any grave accidents. Certain accidents, however, do sometimes occur, such as pallor of the face, loquacity, tendency to syncope; but with ordinary doses, such as 20 centigrams at most, accidents are very rare. In short, from 10 to 12 centigrams, or 5 Pravaz's syringefuls of the solution, most commonly suffice. To sum up, the author considers cocaine an excellent substance, faithful and efficacious; it is sufficient to handle it with precaution, as is necessary with all the other alkaloids at the disposal of the medical man.

By his will the late Dr. Ricord has left, among other legacies, 10,000 francs to the Academy of Medicine for the foundation of a biennial prize, 5,000 francs to the Société de Chirurgie for a similar purpose, and 10,000 francs to the Association Générale des Médicins de France. To the Midi Hospital he has bequeathed his splendid library, in memory of his twenty-nine years' service as surgeon and teacher in that hospital, to which he owed his reputation and his wealth. It is proposed to perpetuate his name in a similarly appropriate manner in connection with the scene of his scientific labors and triumphs by calling the Hôpital du Midi the Hôpital Ricord.

Professor Richet has resigned his position as surgeon to the Hôtel Dieu on the ground of old age and infirmity. A. B.

ASSOCIATION OF AMERICAN ANATOMISTS.—The second meeting of the Association of American Anatomists will take place in the Biological Department of the University of Pennsylvania, December 26, 27 and 28. The profession is cordially invited to attend the meetings.

BOOK REVIEWS.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES. Edited by CHARLES E. SAJOUS, M.D., and Seventy Associate Editors, asssisted by over two-hundred Corresponding Editors, Collaborators and Correspondents. Illustrated with Chromo-Lithographs, Engravings and Maps. Five Volumes. Philadelphia, New York and London: F. A. Davis, 1889.

We venture to say that all who saw the Annual as it appeared in 1888 were on the lookout for its reappearance this year; but there are many whose knowledge of this magnificent undertaking will date with this present issue, and to those a mere examination of the work will suffice to show that it fills a legitimate place in the evolution of knowledge, for it does what no single individual is capable of doing. It aims to preserve the useful and discard the useless in all the multiple branches of medical science. Its function is selective, developed of necessity, by the superabundant medical literature of the day. We feel that a work of this class will grow in usefulness with each succeeding annual issue.

These volumes make readily available to the busy practitioner the best fruits of medical progress for the year, selected by able editors from the current literature of the world; such a work cannot be overlooked by anyone who would keep abreast of the times. Even the knowledge picked up by the habitual journal reader, who runs over six or eight periodicals weekly, cannot be compared with what may be acquired with these volumes which represent the most useful, promising and novel developments in the whole field of medical science that have materialized during a year.

The contents of these five volumes consists of matter which has been taken largely from the current numbers of seven hundred and fifty-six different journals, to which might be added books, theses, monographs, etc., numbering two hundred and thirty-four. These are referred to in the text by date and number, thus giving an unusually wide range of bibliographic material.

No pains have been spared to make the indices as complete and accurate as possible. The weights and measures both Metric and Apothecaries, Farenheit and Centigrade, appear side by side.

Deluged with such a mass of periodical literature as the references in this work show us to be, it would seem almost impossible, without the aid of some such shifting process, to know where we stand in regard to many disputed questions, or what the value of this or that alleged new discovery is. Now every intelligent man wants to hear the evidence, weigh the authority and judge for himself. It would appear that the editors

have acted as impartial collectors of evidence and submit the result of their labor to the judgment of the reader.

With so much that is worthy of notice incorporated in one work, and each department written up with a minuteness and thoroughness appreciated particularly by the specialist, it would avail nothing to cite particular instances of progress. Let it be sufficient to say, however, that while formerly there was a possible excuse for not having the latest information on matters pertaining to the medical sciences, there can no longer be such an excuse while the *Annual* is published.

THE CURE OF CROOKED AND OTHERWISE DEFORMED NOSES. By JOHN B. ROBERTS, A.M., M.D., Professor of Anatomy and Surgery in the Philadelphia Polyclinic, etc. Philadelphia: P. Blakiston, Son & Co. 1889. Pp. 24.

This is a reprint in book form of a paper read before the Philadelphia County Medical Society, and contains some useful hints on the subject of rhinoplasty.

TRANSACTIONS OF THE MICHIGAN STATE MEDICAL SOCIETY. Twenty-fourth annual meeting, held in Kalamazoo, June 9 and 10, 1889; pp. 390.

The work of the Michigan State Society for 1889, as indicated by its published transactions, is deserving of very high praise. Thirty-five papers, covering a wide range of topics, were read at the annual meeting. Although this is not a large number, it is but just to say that the material is of a high order of excellence. Most of the papers are accompanied by the discussions which followed their reading. In point of quality of work done, this Society deserves to rank among the foremost of the State Societies.

ALCOHOL INSIDE OUT. By ELISHA CHENERY, M.D., Member of the American Medical Association, Fellow of the Massachusetts Medical Society, etc. Philadelphia: Records, McMullin & Co. 1889. Cloth, price, $1.50; pp. 340.

Dr. Chenery has considered his subject from the standpoints of chemistry, physiology, pathology and experience, and has presented it in very able form. It is not addressed particularly to the medical profession, but "to the millions." The topics considered are the following: Alcohol, what and whence is it? Alcohol, its way through the system, with observations by the way; Alcohol as a poison, a food, a medicine. In its claims as a food and medicine alcohol receives pretty rough treatment from the writer, who removed his gloves for this purpose. He does not regard it as in any sense a food, or even an "accessory food," by any just interpretation. As a medicine some of its claims to applicability in external and internal medication are admitted; but inasmuch as all its uses are impaired by serious drawbacks, and since other remedies are of equal or superior merit, the writer feels that it may as well be discarded from the materia medica. "On the whole," he says, "alcohol is foreign to the human body, both in nature and in action—an enemy. Alcohol will not destroy itself, nor can its few virtues redeem it in the face of its exceeding hostility to the race. Banishment is its due."

Throughout the entire work the author's citations are extremely numerous. Particular attention is due to the excellent chapter on the adulteration of the various vinous and spirituous liquors in use.

A TREATISE ON THE SCIENCE AND PRACTICE OF MIDWIFERY. By W. S. PLAYFAIR, M.D., LL.D., F.R.C.P., Physician-Accoucheur to H. I. and R. H. the Duchess of Edinburgh, Professor of Obstetric Medicine in King's College, Consulting Physician to the General Lying-in Hospital, London, etc. Fifth American, from the seventh English edition, with notes and additions by ROBERT P. HARRIS, M.D. With five plates and 207 illustrations. Philadelphia: Lea Brothers & Co. 1889. Pp. xxxi, 670. Price, leather, $5.00.

But little can be said that will tend to increase the cordiality of the reception that is assured in advance for such an old and excellent friend as Playfair's Obstetrics, which stands in the first rank of English works on this subject. The present edition follows closely upon the sixth, and accordingly the author has not deemed it necessary to make any very extensive additions to his earlier editions. We regret, nevertheless, that he has not seen fit to enlarge upon the general subject of child-bed fever, the bacteriological aspect of which is decidedly slighted, while the relation of puerperal cellulitis and peritonitis to septic infection is scarcely indicated, these two manifestations of disease being treated almost as separate entities independent of any connection with infectious processes. The footprints of the American editor appear in greatest abundance upon the pages devoted to a consideration of the various modifications of the Cæsarean section, upon which questions Dr. Harris has been afforded abundant opportunity to improve upon the English edition, an opportunity of which he has availed himself with commendable judgment.

THE STORY OF THE BACTERIA AND THEIR RELATION TO HEALTH AND DISEASE. By T. MITCHELL PRUDDEN, M.D. Pp. 143. New York and London: G. P. Putnam's Sons. 1889.

Every one who has read Prudden's "Manual of Practical Normal Histology" is well aware what a large amount of useful information this author

is able to condense in small space. In the present volume he has treated an essentially scientific subject in a popular manner with the avowed purpose of suiting it to the understanding of non-professional readers. This has been done in a most satisfactory and praiseworthy manner. Nothing can be more fascinating than the unfolding of the mysteries of nature before the eyes of the eager searcher for knowledge, and in this small work the author reveals a chapter of nature's secrets which has only been brought to light in very recent years, and of which the general public has as yet extremely little information. It is written in a very simple and untechnical style, but containing as it does much information regarding the bearing of recent investigations, as well as a brief survey of the general scope of the subject, it will be found to possess no small value to medical readers.

SAUNDERS' QUESTION COMPENDS No. 7. ESSENTIALS OF MATERIA MEDICA, THERAPEUTICS, AND PRESCRIPTION WRITING. Arranged in the Form of Questions and Answers, prepared especially for Students of Medicine. By HENRY MORRIS, M.D., Late Demonstrator, Jefferson Medical College; Co-editor Biddle's Materia Medica; Visiting Physician to St. Joseph's Hospital, etc. Pp. xvi, 250. Price, cloth, $1. Philadelphia: W. B. Saunders. 1889.

We believe that quiz compends, when of as high an order of merit as this one, offer substantial advantages to students in facilitating the process of memorizing a vast number of facts and figures. We can hardly agree with the author that this volume is valuable in placing before the student the *principles* of materia medica and therapeutics, but are entirely willing to concede the value of the method employed in setting forth the practical *facts* based upon those principles.

Most of the new remedies receive a proportionate share of attention, and not students alone, but busy practitioners as well may profit by such a survey of the whole field of materia medica as is afforded by the compact arrangement of this convenient work.

ASSOCIATION NEWS.

American Medical Association—Forty-first Annual Meeting.

Section of Obstetrics and Diseases of Women.

The officers of the Section of Obstetrics and Diseases of Women respectfully request those who desire to read papers in that Section at the meeting of the American Medical Association to be held in Nashville, Tenn., May 19–22, to communicate the titles thereof to either of the undersigned not later than January 15, 1890.

WILLIAM WARREN POTTER, Chairman,
284 Franklin St., Buffalo, N. Y.

JOSEPH HOFFMAN, Secretary,
126 W. Diamond St., Philadelphia, Pa.

MISCELLANY.

LETTERS RECEIVED.

Dr. Grebenschikoff, St. Petersburg, Russia; Dr. D. Duckett, Forest, Ill.; Dr. S. P. Deahofe, Potsdam, O.; Dr. E. A. Christian, Pontiac, Mich.; J. H. Bates, Dr. S. S. Purple, New York; Dr. Talbot Jones, St. Paul, Minn.; Dr. Wm. J. Gibson, Saranac Lake, N. Y.; Dr. C. J. Saunders, Clare, Ia.; Dr. Samuel B. Rowe, Rolla, Mo.; W. H. Shieffelin & Co., New York; Dr. Jno. S. Coleman, Augusta, Ga.; Thomas Leeming & Co., New York; Dr. John C. Roe, Rochester, N. Y.; Dr. Valentine Mott, New York; Republican Printing Co., Cedar Rapids, Ia.; R. A. Robinson & Co., Louisville, Ky.; W. P. Cleary, Roseberry Nutrolactis Co., New York; Dr. Harry M. Smith, Leavenworth, Kan.; F. F. Pitman, Newport, R. I.; Lambert Pharmacal Co., St. Louis, Mo.; Dr. F. S. Bascom, Salt Lake City, Utah; Lehn & Fink, New York; Dr. William Mackie, Milwaukee, Wis.; Scott & Bowne, New York; Codman & Shurtleff, Boston; Dr. Wm. B. Atkinson, Philadelphia; Dr. H. S. Johnson, Lawrenceville, N. J.; John R. Ruebsam, Washington; Health Restorative Co., New York; Dr. W. S. Stewart, Philadelphia; S. H. Parvin's Sons, Cincinnati, O.; Dr. H. W. Williams, Boston; Surgeon-General U. S. Army, Washington; Battle & Co., St. Louis, Mo.; Geo. F. Lasher, Philadelphia; Dr. C. F. Falley, Brattyville, Ky.; E. B. Wilson, Collierville, Tenn.; Dr. U. M. L. Rickards, Philadelphia; Lutz & Movius, John O. Meade, King's Medical Advertising Agency, New York; W. Muset, Brooklyn, N. Y.; John Wanamaker, Philadelphia; Dr. C. E. Spencer, Fort Gratiot, Mich.; B. Westermann & Co., New York; Dr. F. B. Lovell, Daykin, Neb.; I. Haldenstein, The Maltine Mfg. Co., New York; Dr. Jos. L. Bauer, St. Louis, Mo.; Dr. James French, Cincinnati, O.; Félix Alcan, Paris, France; Frank S. Billings & Co., Chicago; Dr. Max Thorner, Cincinnati, O.; Dr. L. D. Frum, Scardia, W. Va.; Dr. W. J. Copperuall, South Butler, N. Y.; Dr. Joseph Jones, New Orleans, La.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from December 7, 1889, to December 13, 1889.

Major John D. Hall, Surgeon, is granted leave of absence for ten days, to take effect upon being relieved from duty at Ft. Niagara, N. Y. Par. 11, S. O. 285, A. G. O., Washington, December 7, 1889.

By direction of the Secretary of War, Capt. Edward C. Carter, Asst. Surgeon, will be relieved from duty at Willett's Point, N. Y., upon the arrival at that station of Major Clarence Ewen, Surgeon, and will then proceed to Ft. Walla Walla, Wash., and report in person to the commanding officer of that post for duty, reporting also by letter to the Commanding General, Dept. of the Columbia.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending December 14, 1889.

Surgeon J. W. Ross, detached from Navy Yard, Pensacola, Fla., and placed on waiting orders.

Asst. Surgeon I. W. Kite, detached from Naval Hospital, Philadelphia, and to Navy Yard, Pensacola, Fla.

Surgeon B. F. Rogers, ordered to special duty at Norfolk, Va.

P. A. Surgeon Philip Leach, ordered to duty at Naval Academy, Annapolis, Md.